PCT/JP2004/018208

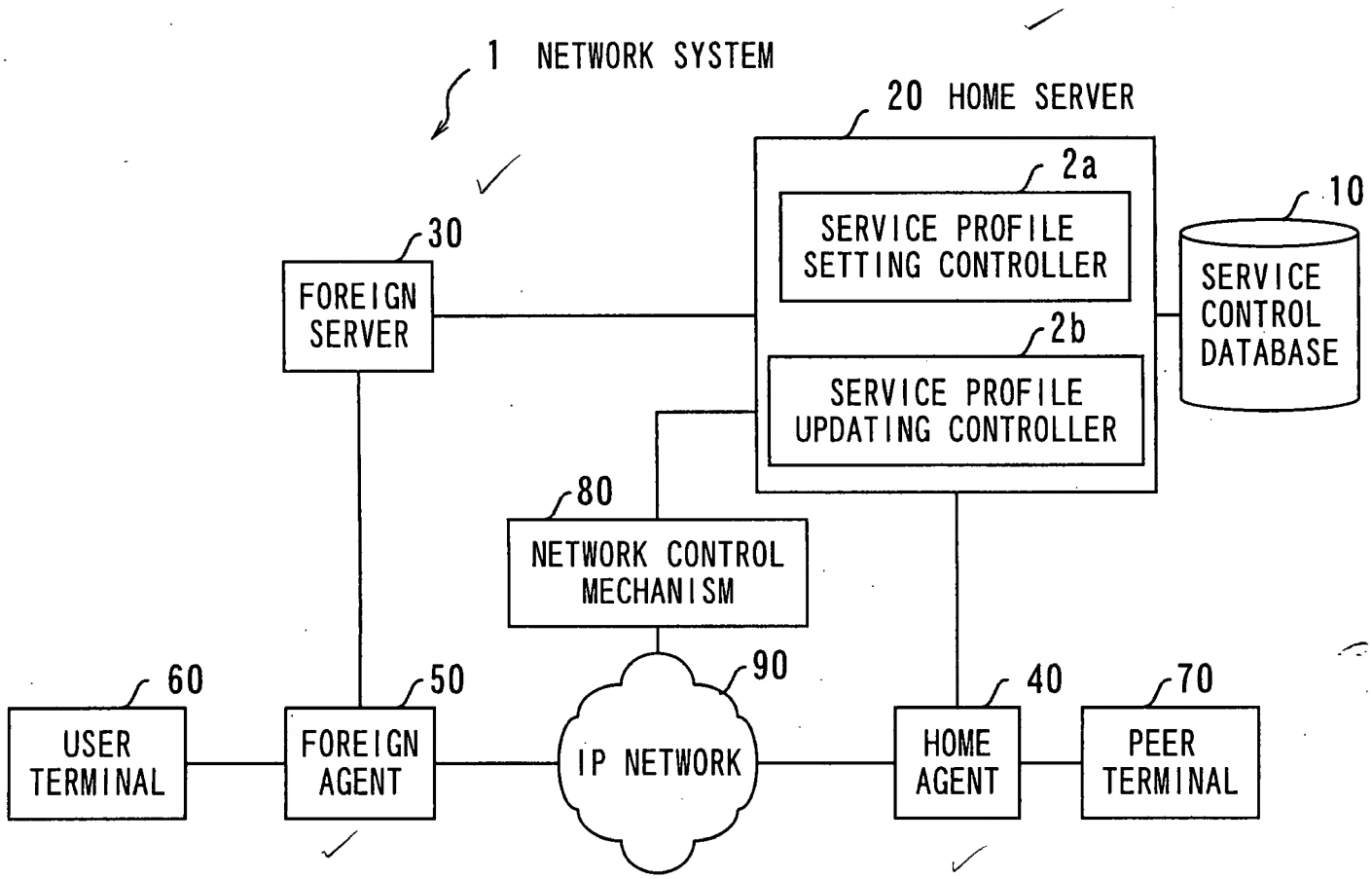

FIG. 1

Patent Application

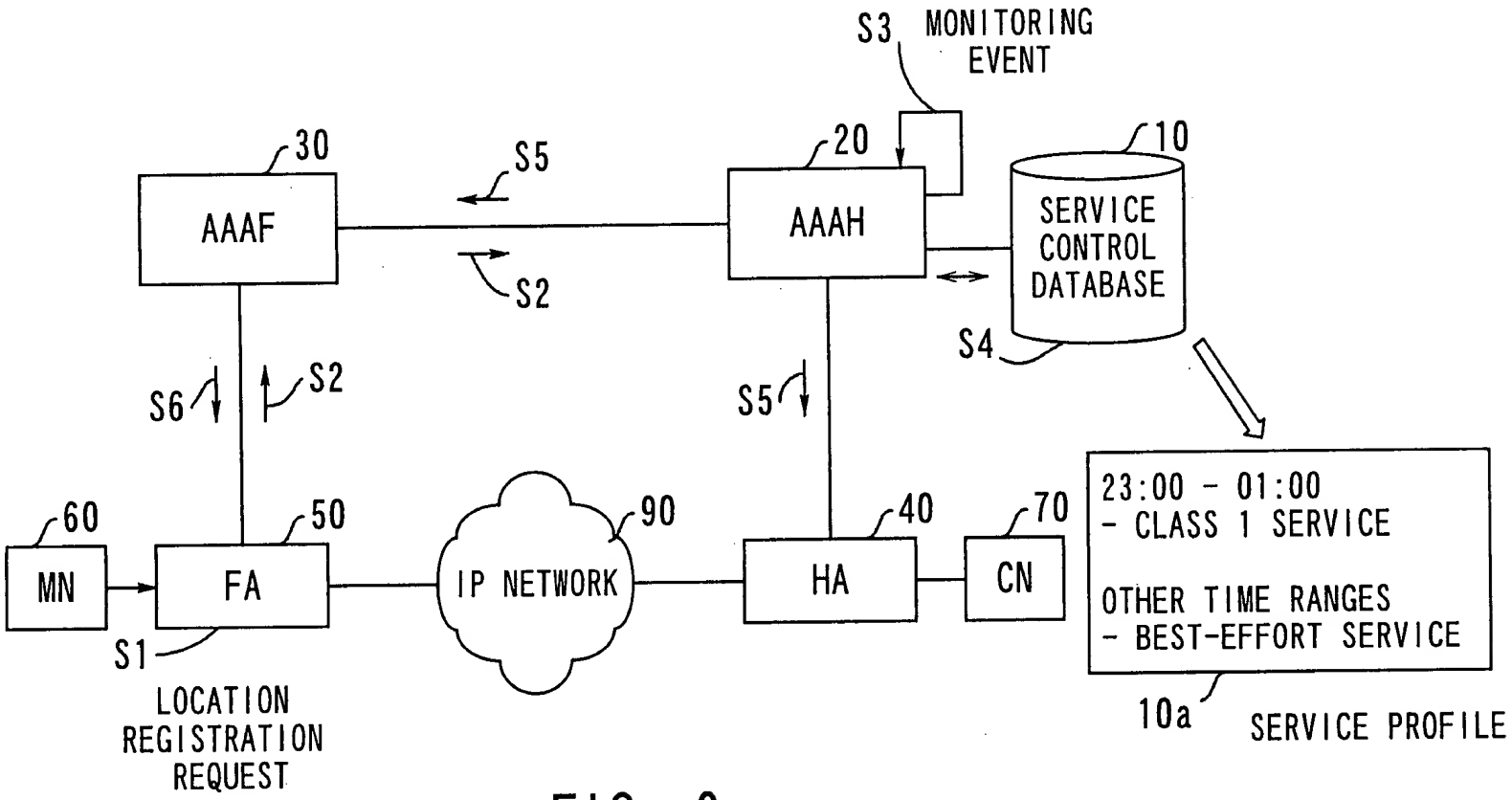

FIG. 2

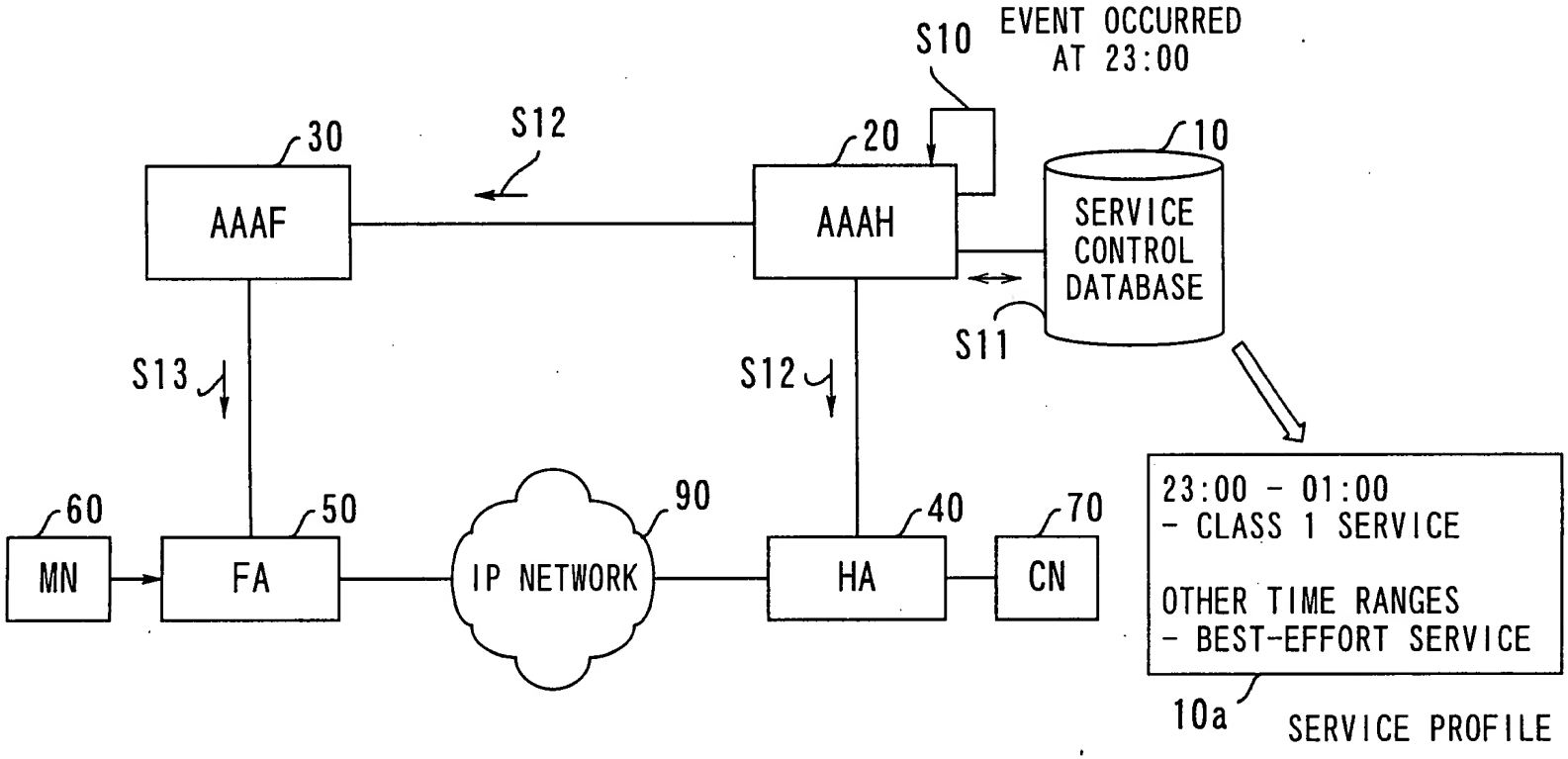
S10
EVENT OCCURRED
AT 23:00
30
S12
20
10
AAAF
AAAH
SERVICE
CONTROL
DATABASE
S11
S13
S12
23:00 - 01:00
- CLASS 1 SERVICE
OTHER TIME RANGES
- BEST-EFFORT SERVICE
60
50
90
40
70
MN
FA
IP NETWORK
HA
CN
10a
SERVICE PROFILE

FIG. 3

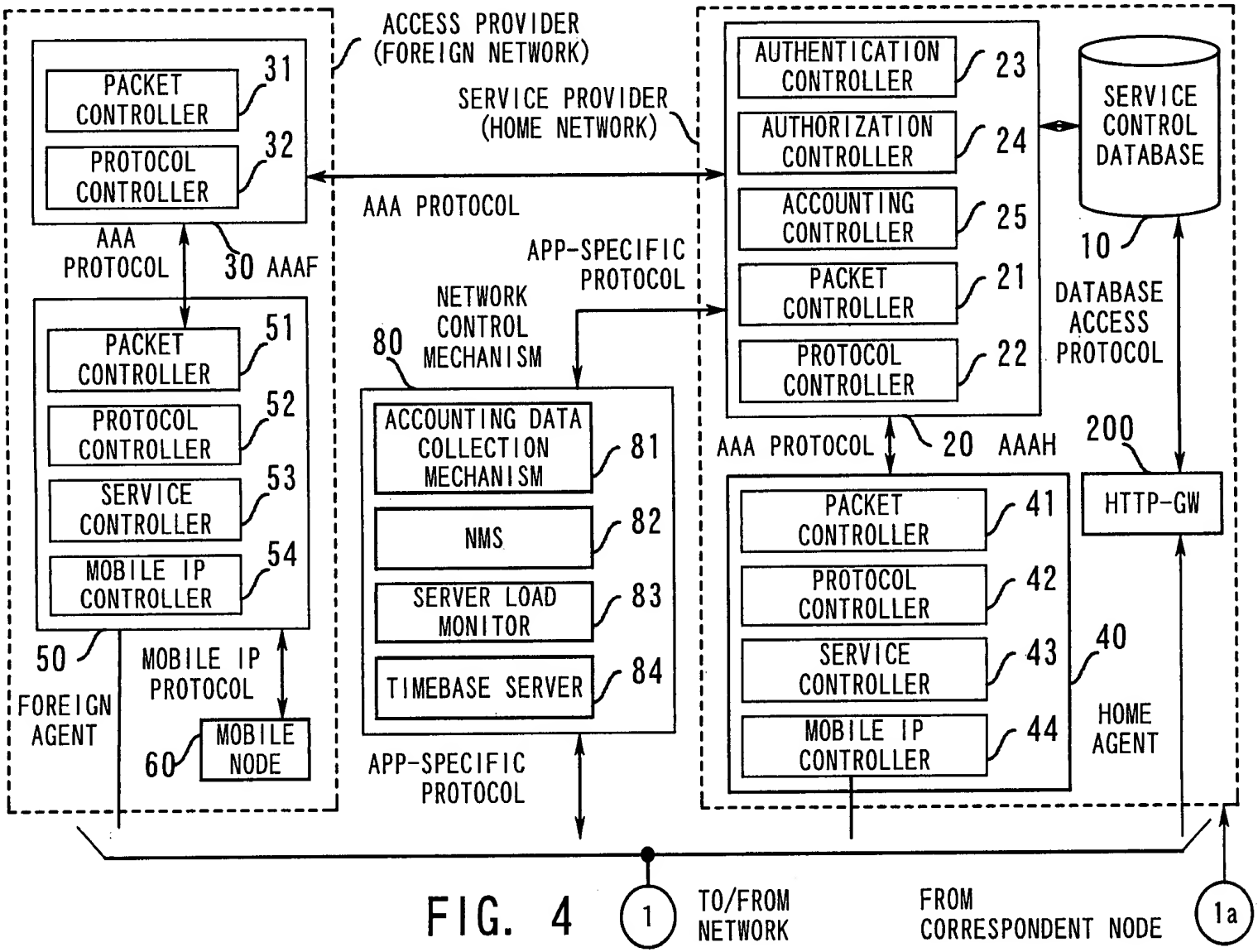
ACCESS PROVIDER
(FOREIGN NETWORK)
SERVICE PROVIDER
(HOME NETWORK)
PACKET CONTROLLER
31
PROTOCOL CONTROLLER
32
AAA PROTOCOL
30 AAAF
AAA PROTOCOL
PACKET CONTROLLER
51
PROTOCOL CONTROLLER
52
SERVICE CONTROLLER
53
MOBILE IP CONTROLLER
54
50
FOREIGN AGENT
MOBILE IP PROTOCOL
60
MOBILE NODE
AAA PROTOCOL
APP-SPECIFIC PROTOCOL
NETWORK CONTROL MECHANISM
80
ACCOUNTING DATA COLLECTION MECHANISM
81
NMS
82
SERVER LOAD MONITOR
83
TIMEBASE SERVER
84
APP-SPECIFIC PROTOCOL
AUTHENTICATION CONTROLLER
23
AUTHORIZATION CONTROLLER
24
ACCOUNTING CONTROLLER
25
PACKET CONTROLLER
21
PROTOCOL CONTROLLER
22
20 AAAH
SERVICE CONTROL DATABASE
10
DATABASE ACCESS PROTOCOL
200
HTTP-GW
PACKET CONTROLLER
41
PROTOCOL CONTROLLER
42
SERVICE CONTROLLER
43
MOBILE IP CONTROLLER
44
40
HOME AGENT
1
TO/FROM NETWORK
FROM CORRESPONDENT NODE
1a

FIG. 4

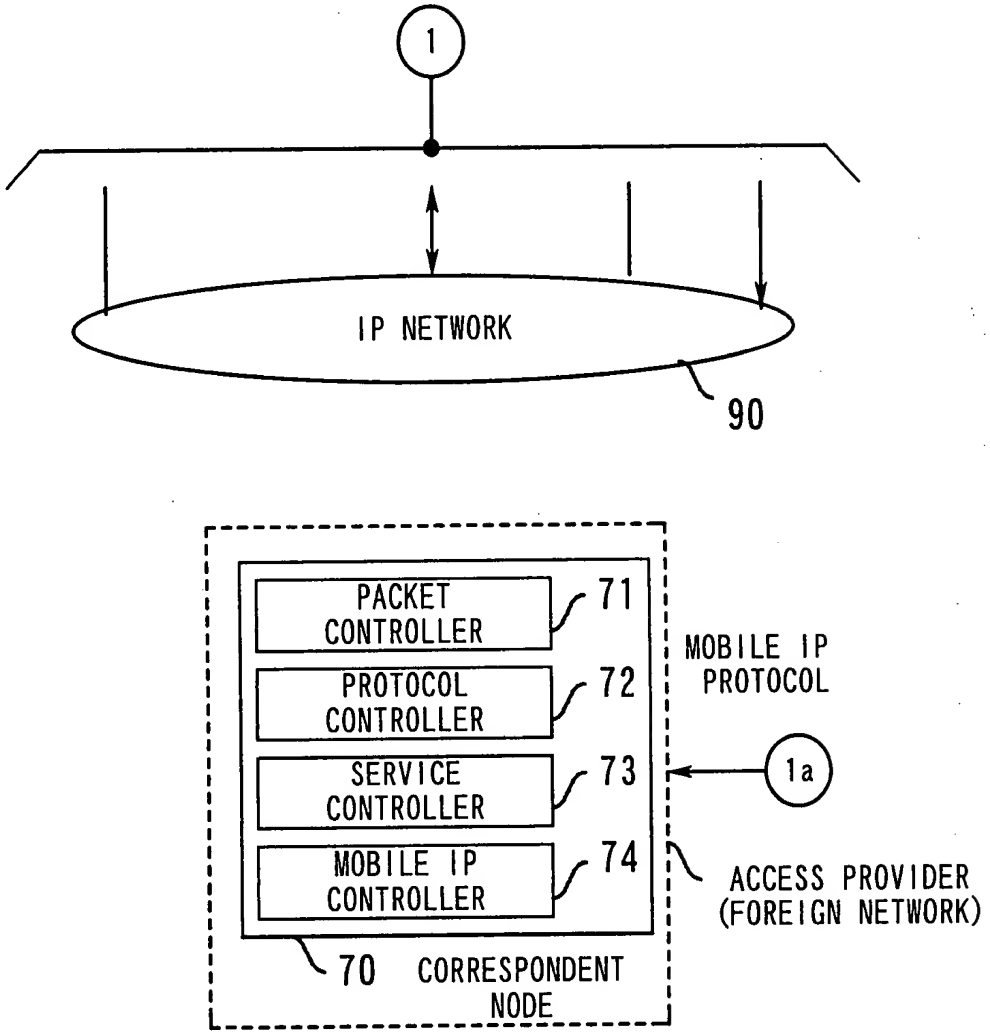
1
IP NETWORK
90
PACKET CONTROLLER
71
PROTOCOL CONTROLLER
72
SERVICE CONTROLLER
73
MOBILE IP CONTROLLER
74
70 CORRESPONDENT NODE
MOBILE IP PROTOCOL
1a
ACCESS PROVIDER (FOREIGN NETWORK)

FIG. 5

Data Items	Detailed Data Items	Description
Profile Identifier	Session Identifier	Indicate session type
	Profile Number	Uniquely assigned to each session
Packet Extraction Parameters	Source Address	Packet filtering rules
	Source Port No.	
	Destination Address	
	Destination Port No.	
Routine/ Packet Editing Parameters	Encapsulation (Encryption) Method	How to encapsulate packets to be routed
	Routing Address (Multiple Entries Allowed)	IP address of the next node
	Type of Service (TOS)	TOS field value to be set to IP header
	Decapsulation Command	Request for decapsulation
Individual Control Data	Service Control Type	Designate which control table to search – service profile cache – binding cache – MIP home (mobility binding) – MIP foreign (visitor list) – ANYCAST (extended visitor list) – routing table
	Control Data Identifier	Pointer to an intended part of the table

10-1
10-2
10-3
10-4

FIG. 6

501

Service Profile Cache			Description
SPC	Node-specific SPC (NSPC)	Source SPC (NSPCsrc)	A collection of service profiles to be used mainly for user-independent, common services. Indexed by source address information of data packets. Created by a mobility agent at the time of initial set-up, based on static information stored in hard drives and other storage devices of network equipment.
		Source Default SP (NDSPsrc)	Service profile applied when there is a hit in NSPCsrc, but no hit in individual control tables.
		Destination SPC (NSPCdst)	A collection of service profiles to be used mainly for user-independent, common services. Indexed by destination address information of data packets. Created by a mobility agent at the time of initial set-up, based on static information stored in hard drives and other storage devices of network equipment.
		Destination Default SP (NDSPdst)	Service profile applied when there is a hit in NSPCdst, but no hit in individual control tables.
		Default SP (NDSP)	Default service profile used when no hit is found. For retrieval of a network device-specific control table (routing table).
	AAA Communication (ASPC)	Source SPC (ASPCsrc)	A collection of user-specific service profiles. Indexed by source address information of data packets that are sent from AAA systems when a mobile node logs in to the network.
		Destination SPC (ASPCdst)	A collection of user-specific service profiles. Indexed by destination address information of data packets that are sent from AAA systems when a mobile node logs in to the network.

FIG. 7

502

Search Order	Cache Class	Cache Search Result	Individual Control Data Search Result	Next Action
1	ASPCsrc	Hit	Hit	Normal end
			No Hit	Abnormal end
		No Hit		Search NSPCsrc
2	NSPCsrc	Hit	Hit	Normal end
			No Hit	Search NDSPsrc
		No Hit		Search ASPCdst
3	ASPCdst	Hit	Hit	Normal end
			No Hit	Abnormal end
		No Hit		Search NSPCdst
4	NSPCdst	Hit	Hit	Normal end
			No Hit	Search NDSPdst
		No Hit		Use NDSP
5	NDSP	Hit	Hit	Normal end
			No Hit	Abnormal end

FIG. 8

511

Item	Description
Session ID	<NAI of Mobile Node><32-bit Value><Optional Value>
Session Timer	Remaining lifetime of this transaction

FIG. 9

512

Item	Description
Session ID	<NAI of Mobile Node><32-bit Value><Optional Value>
AAAH Address	IP address of AAAH identified by mobile node NAI
Home Agent Address	IP address of home agent allocated by AAAF
Previous Foreign Agent NAI	NAI of previous foreign agent to which the mobile node was attached
Current Foreign Agent NAI	NAI of foreign agent to which the mobile node is currently attached
SCR Requester Address	IP address of AAAH that is requesting SCR
Security Information	Authentication data for validate association between this AAAF and other entities (FA, AAAH, HA allocated by AAAH)
Session Timer	Remaining lifetime of this transaction
Foreign Agent Service Profile	See FIG. 3
Home Agent Service Profile	See FIG. 3
Current State	Waiting, HA requested, AMA in process, HA Change Requested, FA Change Requested

FIG. 10

513

Item	Description
Session ID	<NAI of Mobile Node><32-bit Value><Optional Value>
Home Agent Address	IP address of home agent allocated by AAAH
HA-managing AAAF Address	IP address of AAAF that is allowed by AAAH to allocate home agent
Current AAAF Address	IP address of AAAF requesting AMR
Previous AAAF Address	IP address of previously used AAAF
Address Proxy Address	IP address of address proxy in ANYCAST service
Security Information	Authentication data for validate association between this AAAH and other entities (HA, AAAF)
Session Timer	Remaining lifetime of this transaction
Address Proxy Server Address	IP address of address proxy server
Foreign Agent Service Profile	See FIG. 3
Home Agent Service Profile	See FIG. 3
Current State	Waiting, HA Requested, AMA in Process, HA Change Requested, FA Change Requested

FIG. 11

514

Item	Description
Session ID	<NAI of Mobile Node><32-bit Value><Optional Value>
Session Timer	Remaining lifetime of this transaction
Mobility Binding	Pointer to mobility binding
SCR Request Flag	Flag indicating that service profile is being updated in correspondent node
SCR Requester Address	IP address of the entity requesting SCR

FIG. 12

520

Item	Description
IP Source Address (Home Address)	Home address assigned to mobile node. Notified by registration request or AMA message
Link Layer Source Address of Mobile Node	Link layer (MAC) address of mobile node
UDP Source Port	UDP Source port of mobile node
Home Agent Address	Address of home agent. Provided in registration request or AMA message
Registration Request Identifier	Identifier used to associate between request and response
Lifetime	Valid period of registration request
Authentication Data	Authentication data used by foreign agent to authenticate requesting mobile node

FIG. 13

521

Item	Description
Home Address	Home address assigned to mobile node
Care-of Address of Mobile Node	IP address of foreign agent to which mobile node is currently attached
Correspondent Node with Route Optimization	IP address of correspondent node to which route optimization is being applied
Registration Request Identifier	Identifier used to associate between request and response
Lifetime	Valid Period of Registration Request
Authentication Data	Authentication data used by foreign agent to authenticate requesting mobile node

FIG. 14

Item	Description
User NAI	User's Network Access Identifier (NAI)
User Profile	User name, Address, Phone No. etc.
User Authentication Data	Mobile Node-AAA Authentication Key, SPI, User ID, Password
Service Level Agreement (SLA)	Service agreement with customer
Service-specific Profile	Diffserve, Packet Filtering, ANYCAST, Multi Cast, etc

FIG. 15

531

Service Class	Description
Class A	Maximum transmission delay is guaranteed to be within a prescribed tolerance
Class B	In Diffserv, high priority queuing is applied as long as it does not affect Class A traffic. May be divided into several subclasses, depending on Diffserv types
Class C	Best-effort service. Lower priority queuing than Class B.

FIG. 16

532

Item	Description
Flat-rate Accounting (Fixed charge for limited hours, plus additional charge for excess hours)	(Service Class-dependent Basic Charge) + (Service Class-dependent Hourly Rate) * (Excess Hours)
Usage-based Accounting (Proportional to the amount of packets transferred)	Summation of [(Servic Class-dependent Rate) * (Total Amount of Packets Transferred to/from Edge Node (Foreign Agent))]

FIG. 17

533

Control Parameters	Description
Charge	System warns the user when the amount of service charges has exceeded a limit predefined by the user, prompting him/her to decide whether to continue the service.
Time	User may choose a more affordable service which is available only in low-traffic hours. User may choose variable-class service which provides different levels of service depending on the time of day.
Service Class	User may choose variable-class service which provides different levels of service depending on the type of applications, or type of packets, to minimize the usage-based charge.
Roaming Option	User may enable roaming option with additional cost. User may cut the cost by disabling roaming option.

FIG. 18

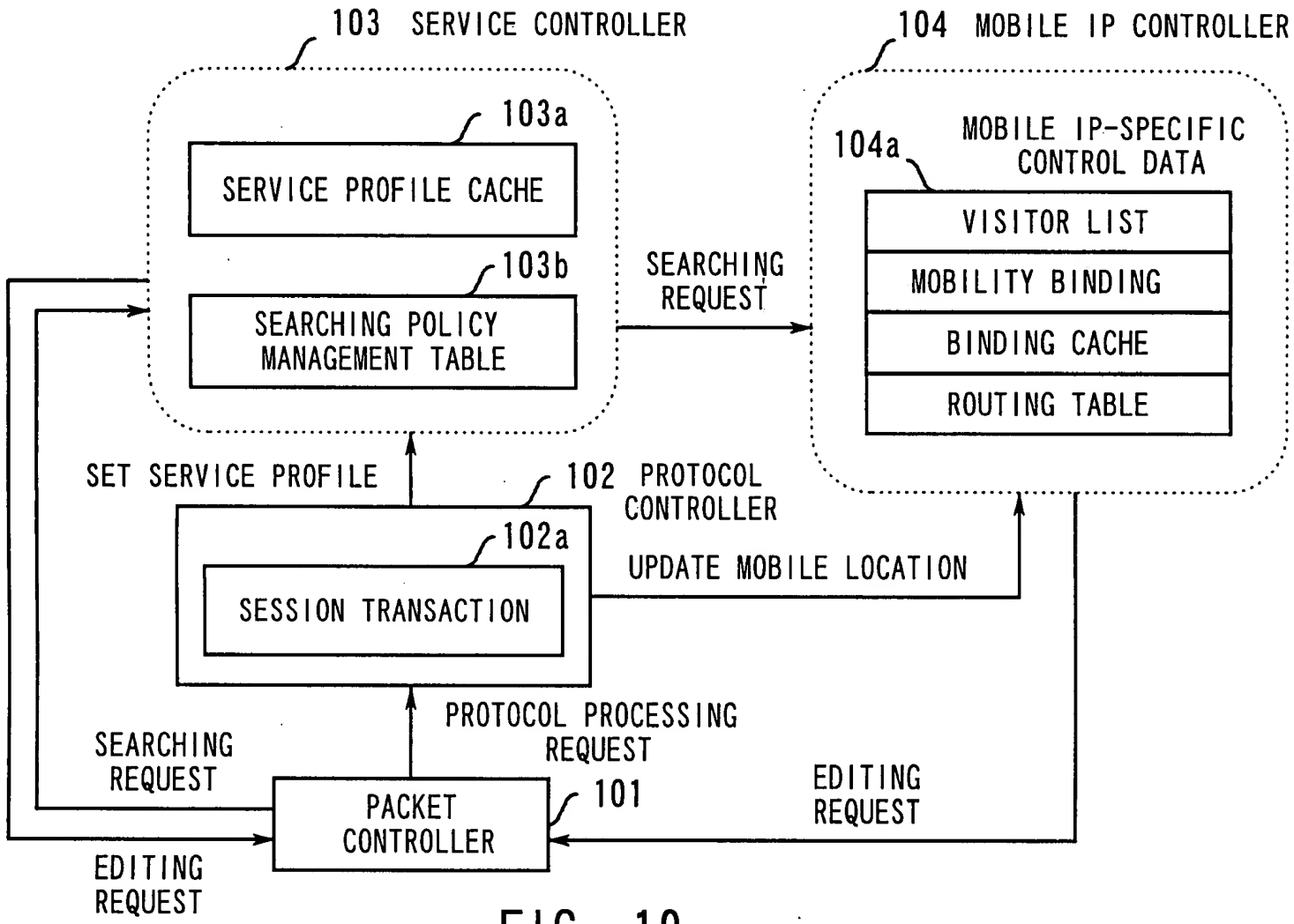
103 SERVICE CONTROLLER
104 MOBILE IP CONTROLLER
103a
SERVICE PROFILE CACHE
103b
SEARCHING POLICY MANAGEMENT TABLE
SEARCHING REQUEST
104a
MOBILE IP-SPECIFIC CONTROL DATA
VISITOR LIST
MOBILITY BINDING
BINDING CACHE
ROUTING TABLE
SET SERVICE PROFILE
102 PROTOCOL CONTROLLER
102a
SESSION TRANSACTION
UPDATE MOBILE LOCATION
PROTOCOL PROCESSING REQUEST
SEARCHING REQUEST
PACKET CONTROLLER
101
EDITING REQUEST
EDITING REQUEST

FIG. 19

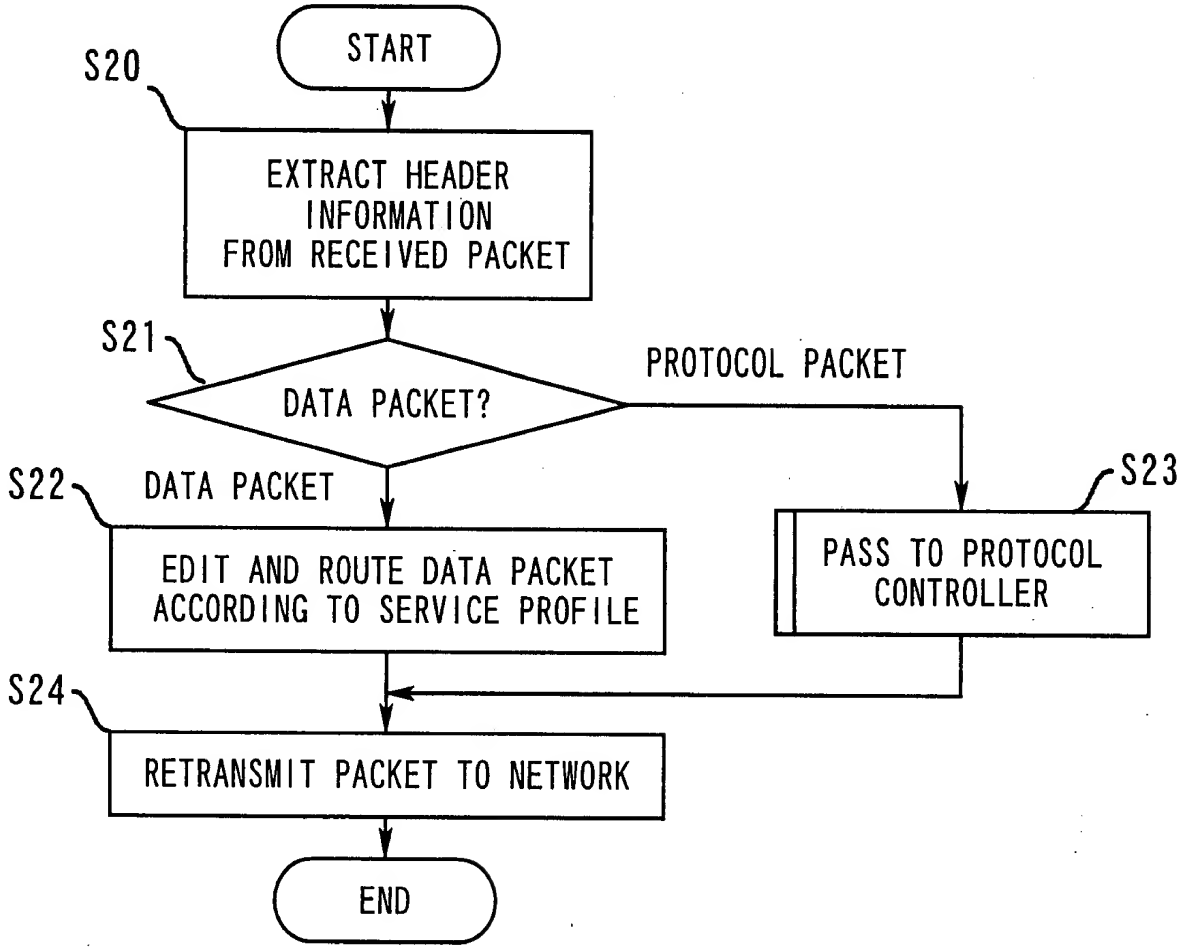
START
S20
EXTRACT HEADER INFORMATION FROM RECEIVED PACKET
S21
DATA PACKET?
PROTOCOL PACKET
DATA PACKET
S22
EDIT AND ROUTE DATA PACKET ACCORDING TO SERVICE PROFILE
S23
PASS TO PROTOCOL CONTROLLER
S24
RETRANSMIT PACKET TO NETWORK
END

FIG. 20

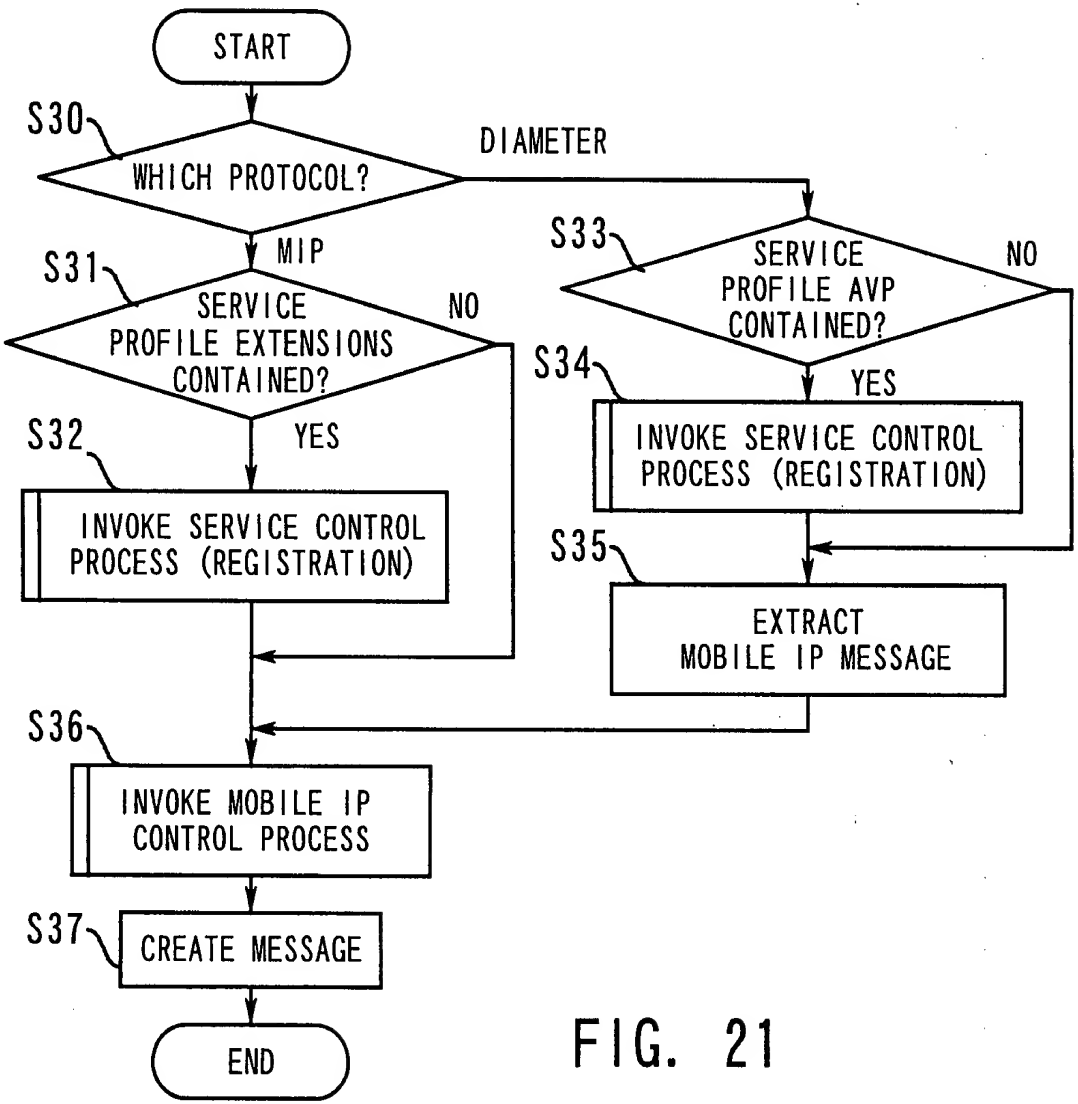
START
S30
WHICH PROTOCOL?
DIAMETER
MIP
S31
SERVICE PROFILE EXTENSIONS CONTAINED?
NO
YES
S32
INVOKE SERVICE CONTROL PROCESS (REGISTRATION)
S33
SERVICE PROFILE AVP CONTAINED?
NO
YES
S34
INVOKE SERVICE CONTROL PROCESS (REGISTRATION)
S35
EXTRACT MOBILE IP MESSAGE
S36
INVOKE MOBILE IP CONTROL PROCESS
S37
CREATE MESSAGE
END

FIG. 21

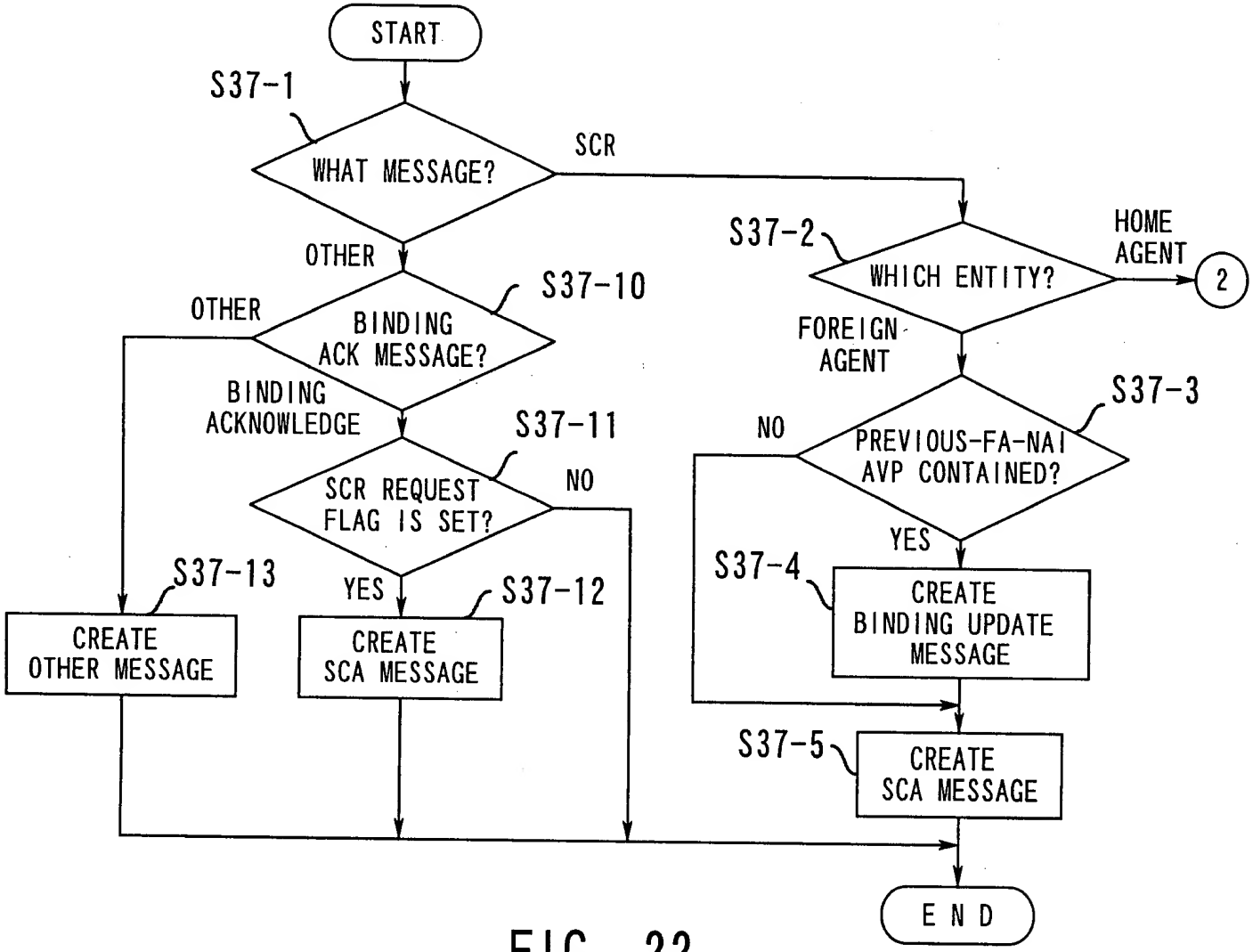
START
S37-1
WHAT MESSAGE?
SCR
OTHER
S37-2
WHICH ENTITY?
HOME AGENT
2
FOREIGN AGENT
OTHER
S37-10
BINDING ACK MESSAGE?
BINDING ACKNOWLEDGE
S37-3
PREVIOUS-FA-NAI AVP CONTAINED?
NO
YES
S37-11
SCR REQUEST FLAG IS SET?
NO
YES
S37-4
CREATE BINDING UPDATE MESSAGE
S37-13
CREATE OTHER MESSAGE
S37-12
CREATE SCA MESSAGE
S37-5
CREATE SCA MESSAGE
END

FIG. 22

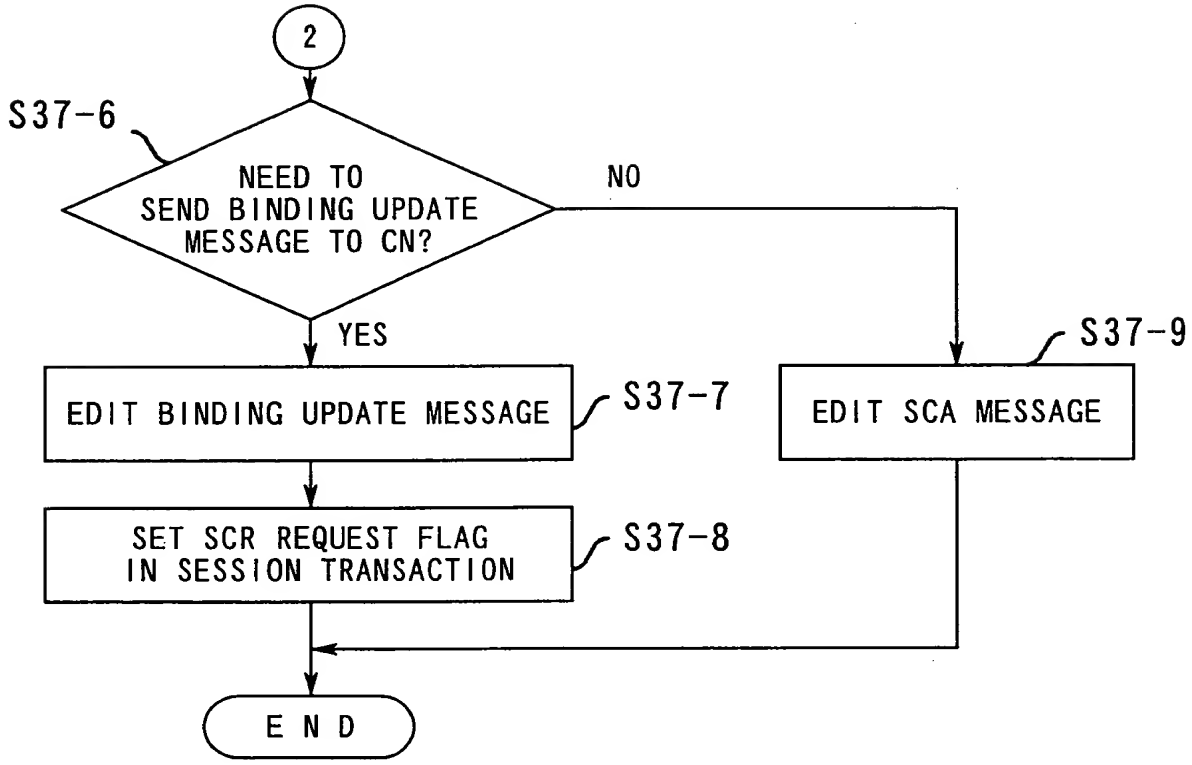
2
S37-6
NEED TO SEND BINDING UPDATE MESSAGE TO CN?
NO
YES
S37-9
EDIT BINDING UPDATE MESSAGE
S37-7
EDIT SCA MESSAGE
SET SCR REQUEST FLAG IN SESSION TRANSACTION
S37-8
E N D

FIG. 23

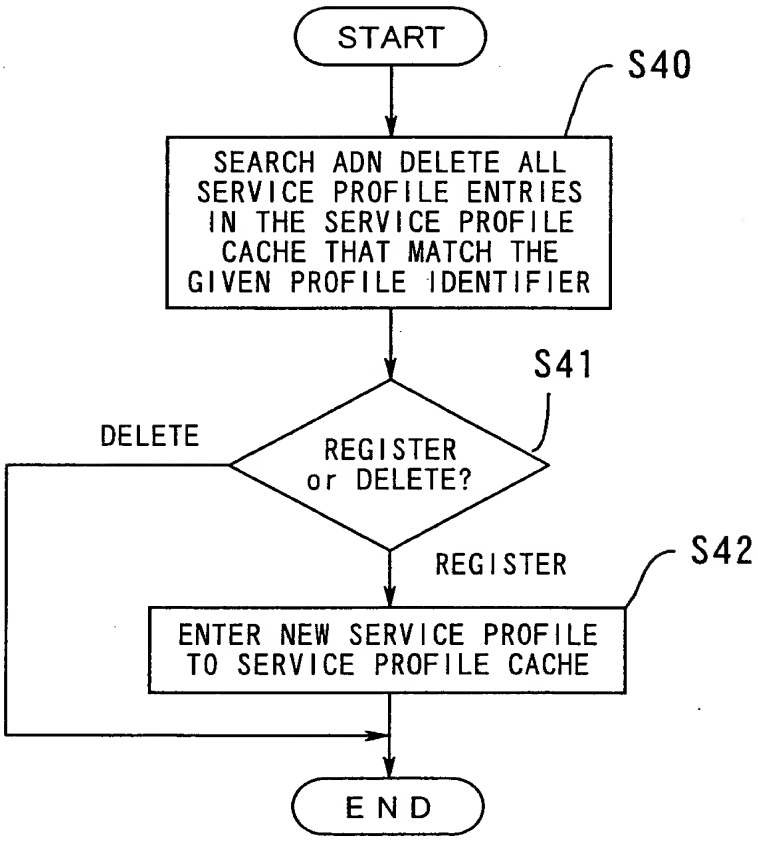
START
S40
SEARCH ADN DELETE ALL SERVICE PROFILE ENTRIES IN THE SERVICE PROFILE CACHE THAT MATCH THE GIVEN PROFILE IDENTIFIER
S41
DELETE
REGISTER or DELETE?
REGISTER
S42
ENTER NEW SERVICE PROFILE TO SERVICE PROFILE CACHE
END

FIG. 24

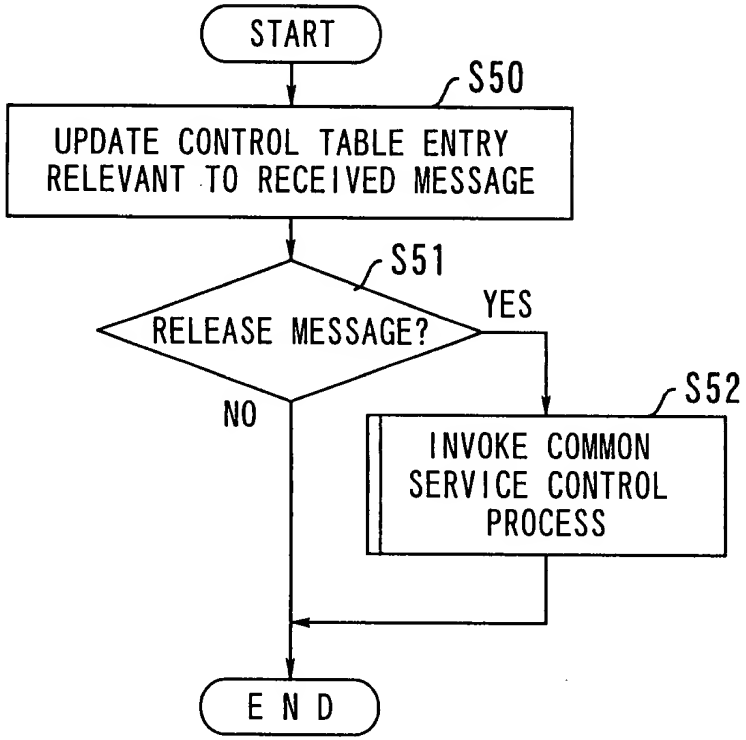

FIG. 25(A)

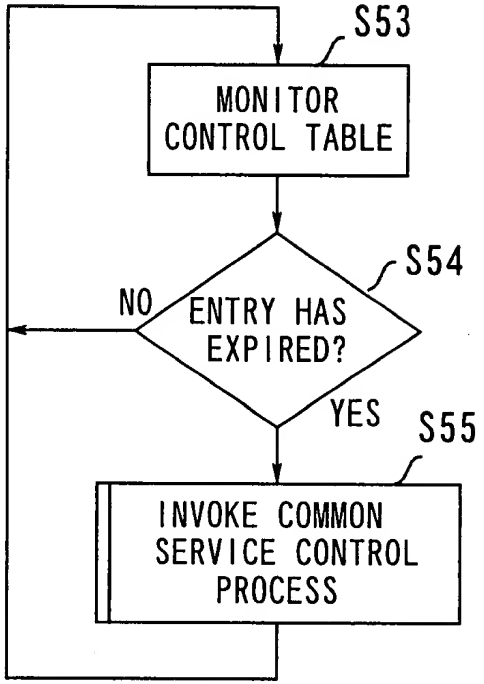

FIG. 25(B)

600

Received Message	Criteria	Precessing Entity	Message to be transmitted	Protocol
Registration Request	with AAA extension	Foreign Agent	AMR	DIAMETER
Registration Request	without AAA extension	Foreign Agent	Registration Request	Mobile IP
		Home Agent	Registration Reply	Mobile IP
Registration Response		Foreign Agent	Registration Reply	Mobile IP
AMA		Foreign Agent	Registration Reply	Mobile IP
HAR		Home Agent	HAA	DIAMETER
Binding Update		Foreign Agent, Correspondent Node	Binding Acknowledge	Mobile IP
Binding Acknowledge	SCR is present	Home Agent	SCA	DIAMETER
SFR		Foreign Agent, Home Agent	SFA	DIAMETER
SCR	with Previous-FA-NAI AVP	Foreign Agent	Binding Update, SCA	Mobile IP, DIAMETER
	without Previous-FA-NAI AVP	Foreign Agent	SCA	DIAMETER
	Binding Update for CN required	Home Agent	Binding Update	Mobile IP
	No Binding Update for CN required	Home Agent	SCA	DIAMETER

FIG. 26

610

Processing Entity	Received Message	Control Table
Foreign Agent	Registration Request Message	Visitor List
	Binding Update Message	Binding Cache
Home Agent	Registration Request Message	Mobility Binding
Correspondent Node	Binding Update Message	Binding Cache

FIG. 27

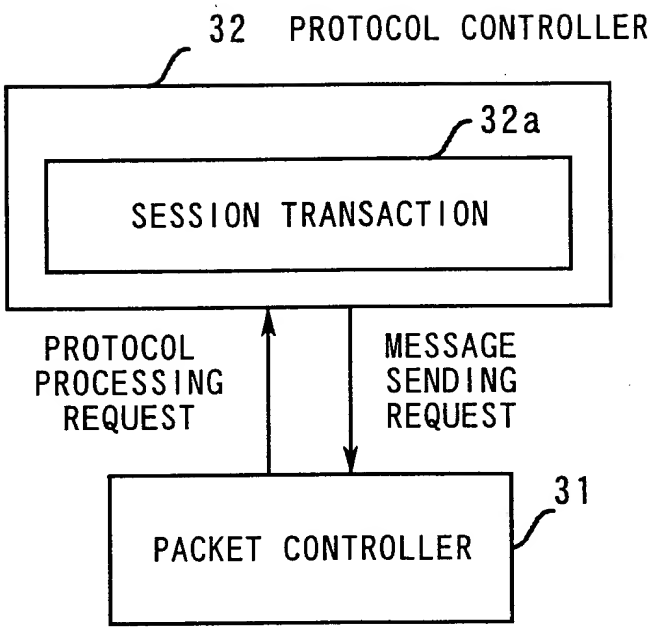
32 PROTOCOL CONTROLLER
32a
SESSION TRANSACTION
PROTOCOL PROCESSING REQUEST
MESSAGE SENDING REQUEST
31
PACKET CONTROLLER

FIG. 28

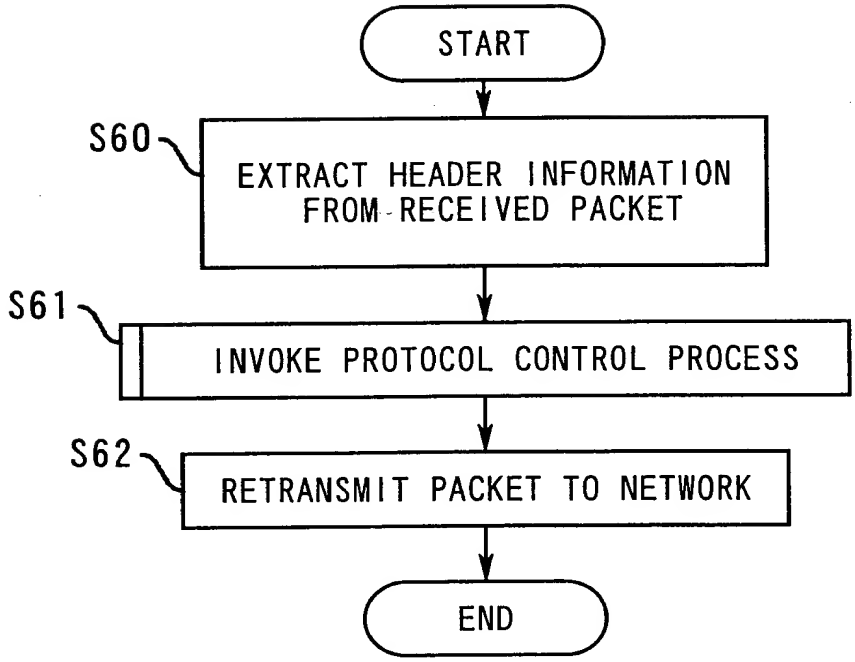
START
S60
EXTRACT HEADER INFORMATION FROM RECEIVED PACKET
S61
INVOKE PROTOCOL CONTROL PROCESS
S62
RETRANSMIT PACKET TO NETWORK
END

FIG. 29

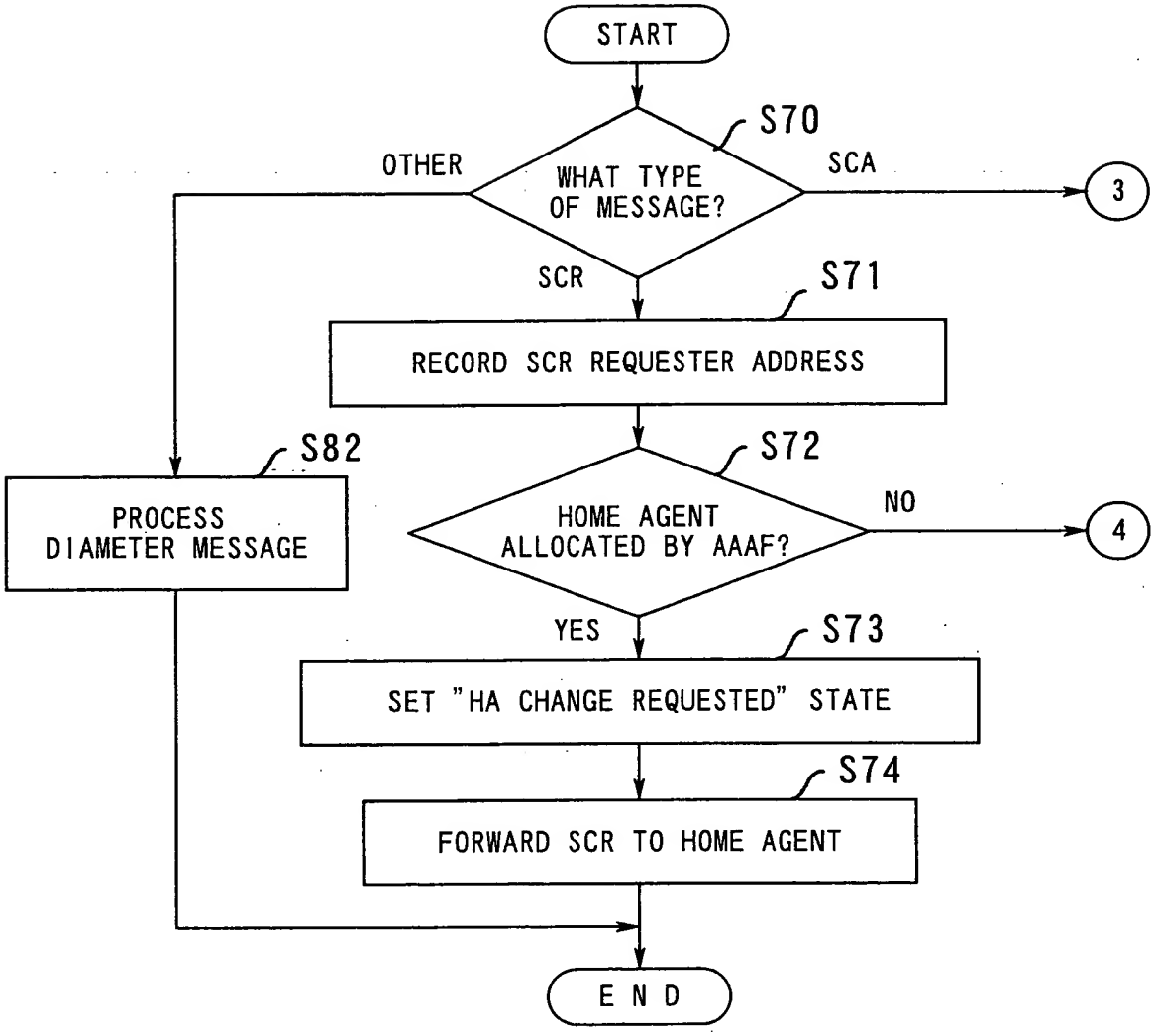
START
S70
WHAT TYPE OF MESSAGE?
OTHER
SCA
3
SCR
S71
RECORD SCR REQUESTER ADDRESS
S82
PROCESS DIAMETER MESSAGE
S72
HOME AGENT ALLOCATED BY AAAF?
NO
4
YES
S73
SET "HA CHANGE REQUESTED" STATE
S74
FORWARD SCR TO HOME AGENT
E N D

FIG. 30

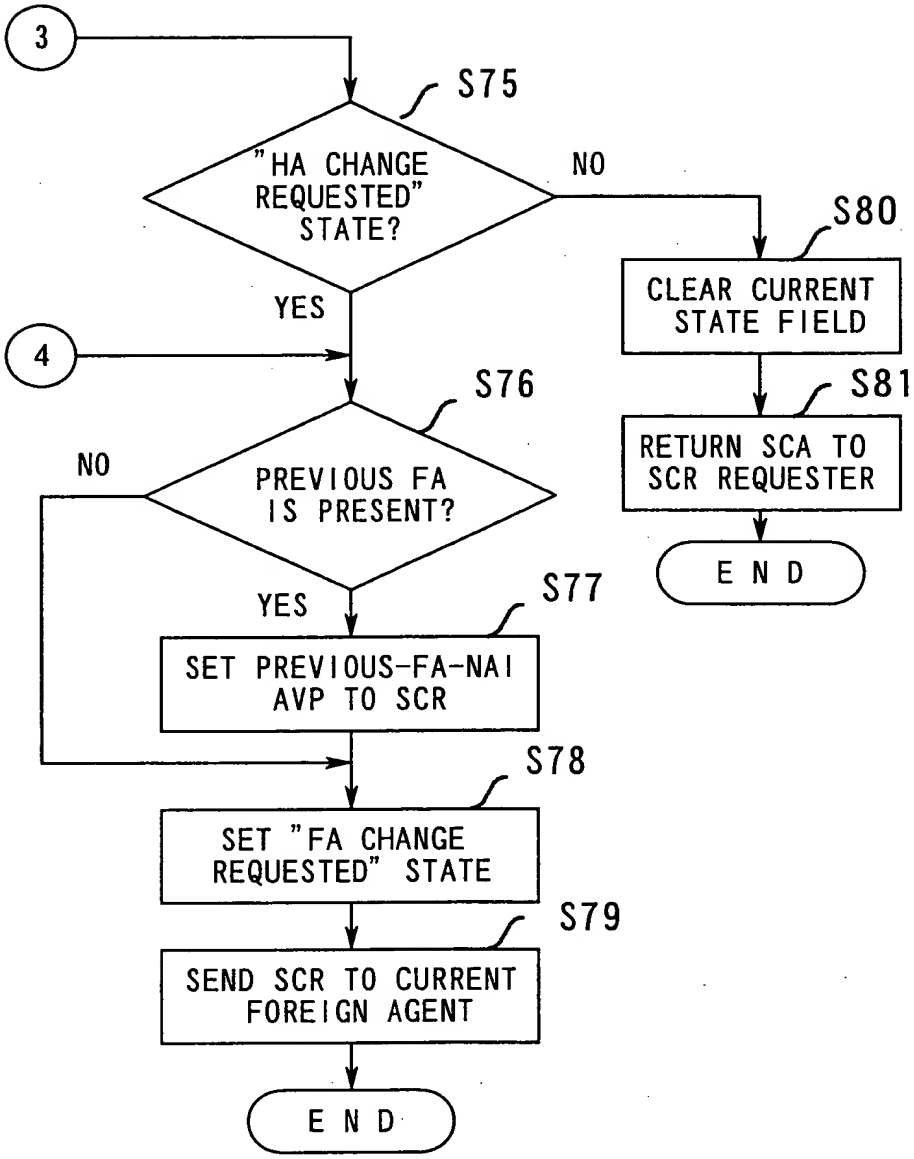
3
S75
"HA CHANGE REQUESTED" STATE?
NO
S80
CLEAR CURRENT STATE FIELD
YES
4
S76
S81
RETURN SCA TO SCR REQUESTER
NO
PREVIOUS FA IS PRESENT?
E N D
YES
S77
SET PREVIOUS-FA-NAI AVP TO SCR
S78
SET "FA CHANGE REQUESTED" STATE
S79
SEND SCR TO CURRENT FOREIGN AGENT
E N D

FIG. 31

620

Message Received	Action to be Invoked	Criteria	Destination	Message to Send
AMR	Create session transaction	with Previous-FA-NAI AVP	AAAH	AMR
		w/o Previous-FA-NAI AVP	Current Foreign Agent	AMA
AMA	Set service profile to session transaction	w/o Home-Agent-Address AVP	Home Agent	HAR
		with Home-Agent-Address AVP	Current Foreign Agent	AMA
HAA	Set home agent address to session transaction		Current Foreign Agent	AMR
SCR	Update service profile	w/o Home Agent allocation	Current Foreign Agent	SCR
		with Home Agent allocation	Home Agent	SCR
SCA	Forward SCA message	in "HA Change Requested" state	Current Foreign Agent	SCR
		in "FA Change Requested" state	AAAH	SCA
SFR	Forward SFR message	w/o Home Agent allocation	Current Foreign Agent	SFR
		with Home Agent allocation	Home Agent	SFR
SFA	Terminate session transaction	in "HA Release Requested" state	Current Foreign Agent	SFR
		in "FA Release Requested" state	AAAH	SFA

FIG. 32

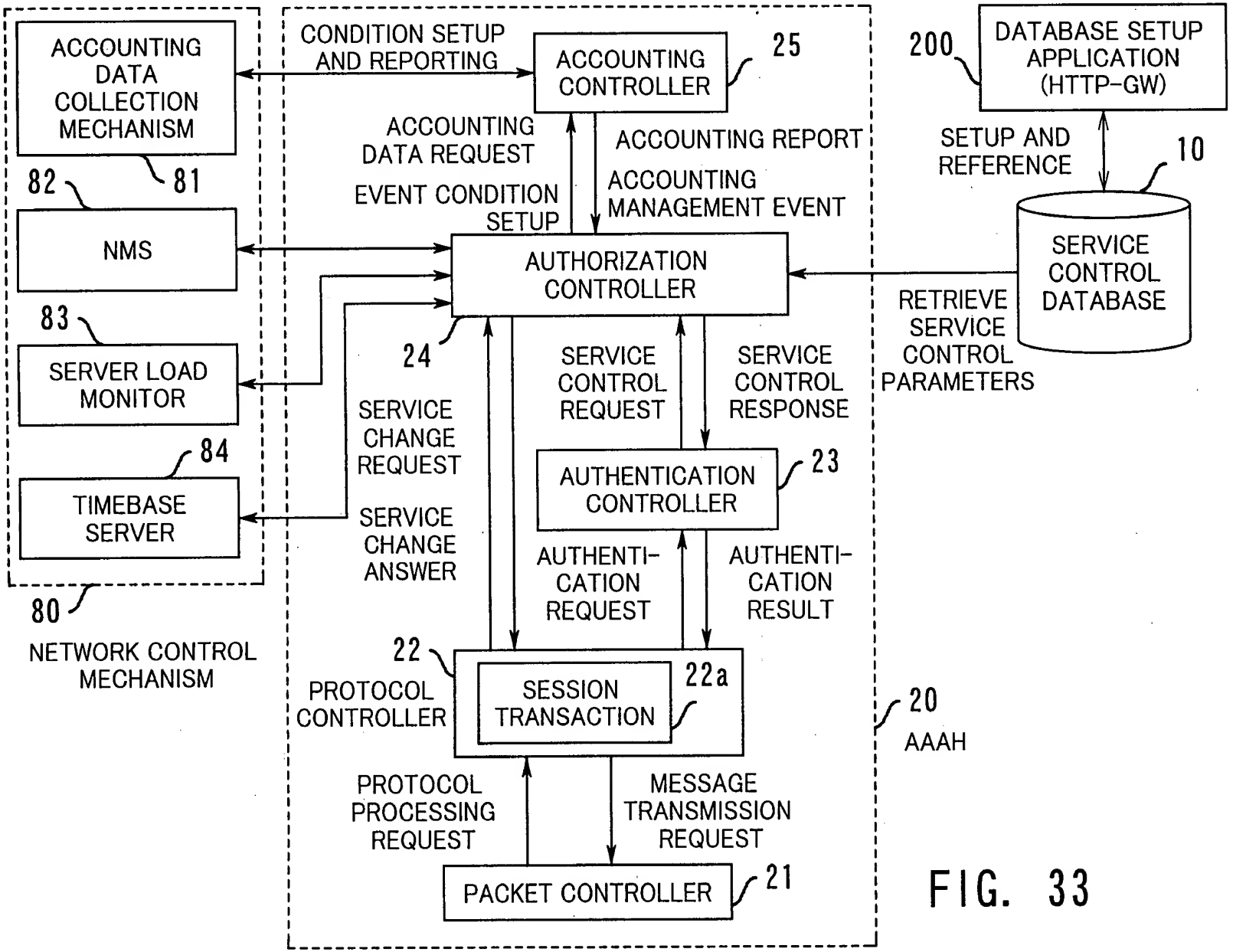
ACCOUNTING DATA COLLECTION MECHANISM
81
82
NMS
83
SERVER LOAD MONITOR
84
TIMEBASE SERVER
80
NETWORK CONTROL MECHANISM
CONDITION SETUP AND REPORTING
ACCOUNTING CONTROLLER
25
ACCOUNTING DATA REQUEST
EVENT CONDITION SETUP
ACCOUNTING REPORT
ACCOUNTING MANAGEMENT EVENT
AUTHORIZATION CONTROLLER
24
SERVICE CHANGE REQUEST
SERVICE CHANGE ANSWER
SERVICE CONTROL REQUEST
SERVICE CONTROL RESPONSE
AUTHENTICATION CONTROLLER
23
AUTHENTI-CATION REQUEST
AUTHENTI-CATION RESULT
22
PROTOCOL CONTROLLER
SESSION TRANSACTION
22a
20
AAAH
PROTOCOL PROCESSING REQUEST
MESSAGE TRANSMISSION REQUEST
PACKET CONTROLLER
21
200
DATABASE SETUP APPLICATION (HTTP-GW)
SETUP AND REFERENCE
10
SERVICE CONTROL DATABASE
RETRIEVE SERVICE CONTROL PARAMETERS

FIG. 33

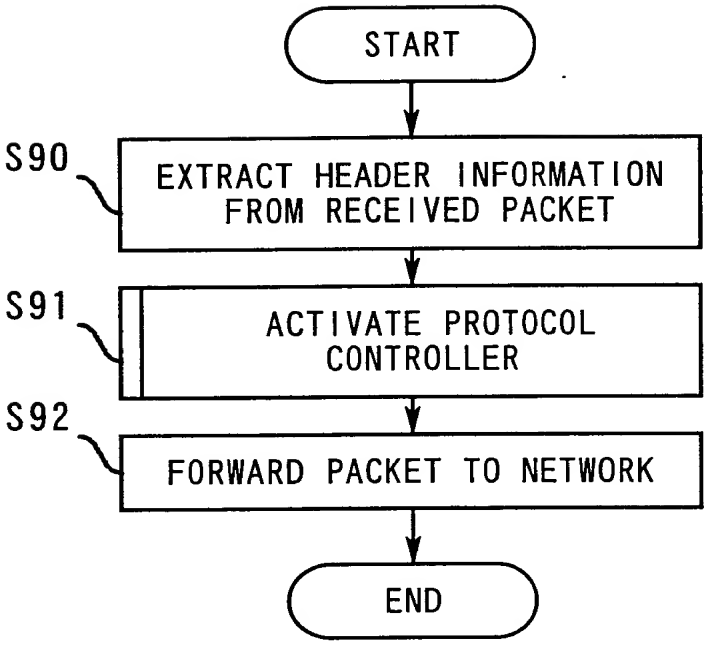
START
S90
EXTRACT HEADER INFORMATION FROM RECEIVED PACKET
S91
ACTIVATE PROTOCOL CONTROLLER
S92
FORWARD PACKET TO NETWORK
END

FIG. 34

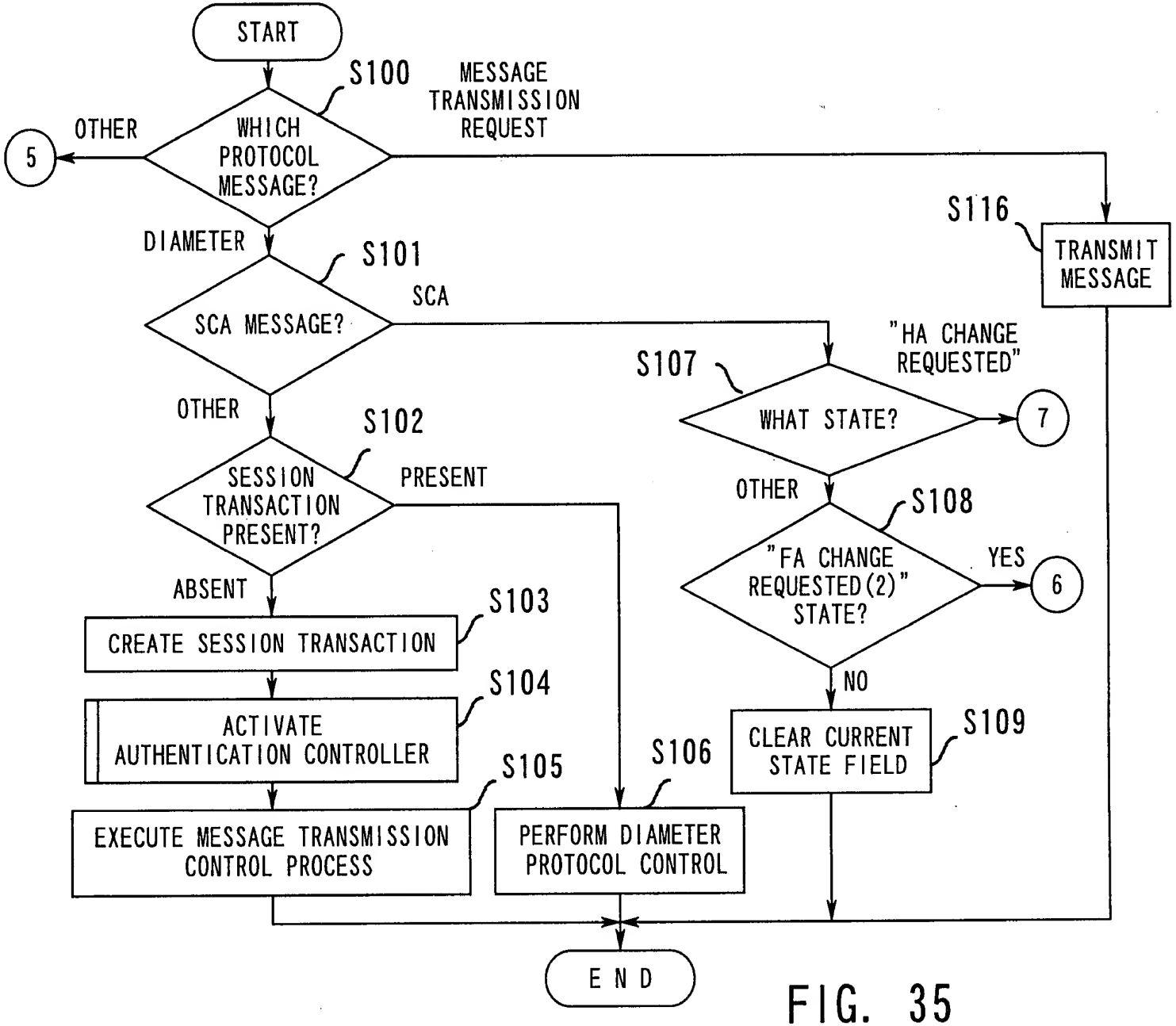
START
S100
MESSAGE TRANSMISSION REQUEST
WHICH PROTOCOL MESSAGE?
OTHER
5
DIAMETER
S101
SCA MESSAGE?
SCA
OTHER
S102
SESSION TRANSACTION PRESENT?
PRESENT
ABSENT
S103
CREATE SESSION TRANSACTION
S104
ACTIVATE AUTHENTICATION CONTROLLER
S105
EXECUTE MESSAGE TRANSMISSION CONTROL PROCESS
S106
PERFORM DIAMETER PROTOCOL CONTROL
S116
TRANSMIT MESSAGE
"HA CHANGE REQUESTED"
S107
WHAT STATE?
7
OTHER
S108
"FA CHANGE REQUESTED(2)" STATE?
YES
6
NO
S109
CLEAR CURRENT STATE FIELD
END

FIG. 35

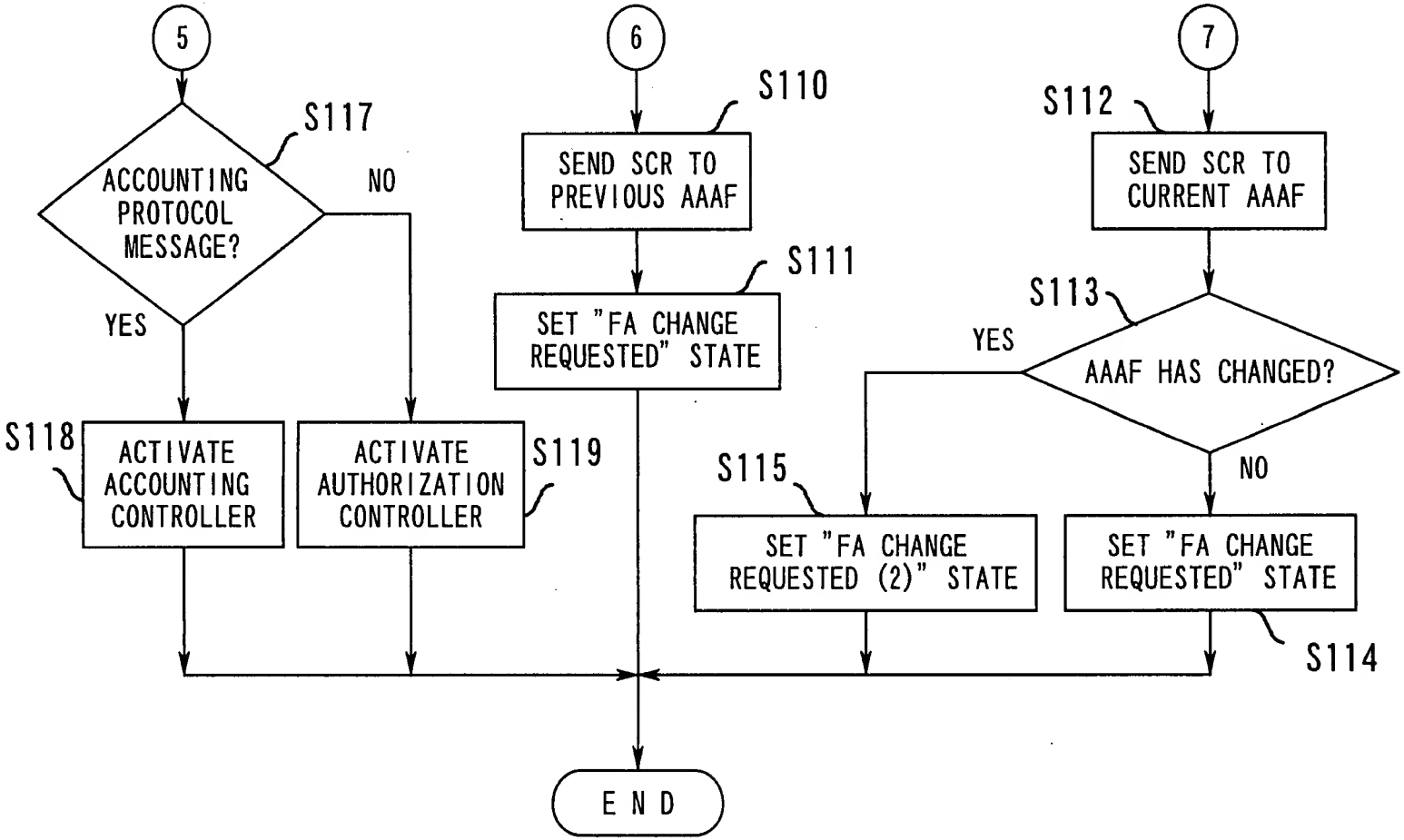
5
6
7
S117
ACCOUNTING PROTOCOL MESSAGE?
NO
YES
S110
SEND SCR TO PREVIOUS AAAF
S111
SET "FA CHANGE REQUESTED" STATE
S112
SEND SCR TO CURRENT AAAF
S113
AAAF HAS CHANGED?
YES
NO
S118
ACTIVATE ACCOUNTING CONTROLLER
ACTIVATE AUTHORIZATION CONTROLLER
S119
S115
SET "FA CHANGE REQUESTED (2)" STATE
SET "FA CHANGE REQUESTED" STATE
S114
END

FIG. 36

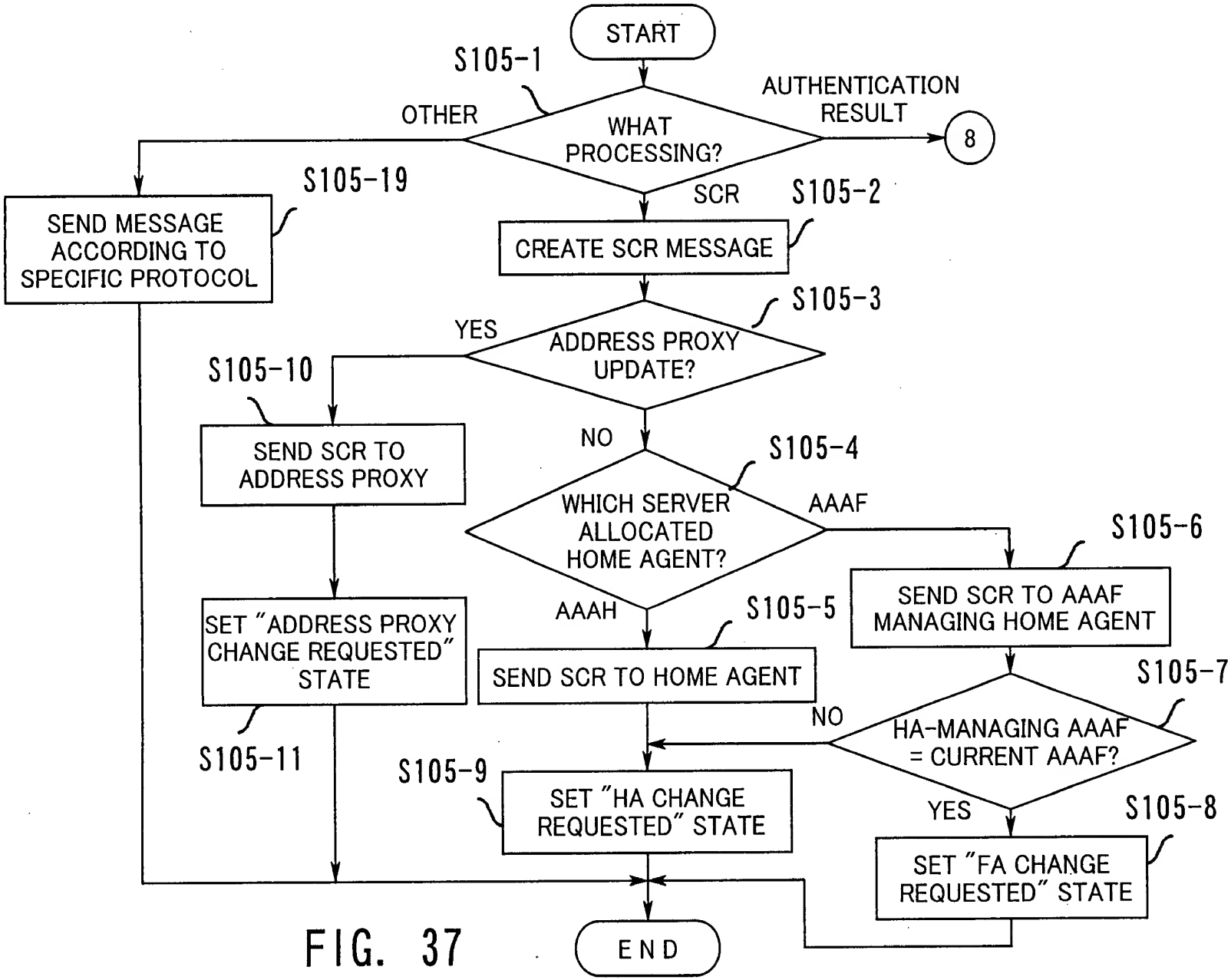
START
S105-1
WHAT PROCESSING?
OTHER
AUTHENTICATION RESULT
8
S105-19
SEND MESSAGE ACCORDING TO SPECIFIC PROTOCOL
SCR
S105-2
CREATE SCR MESSAGE
S105-3
ADDRESS PROXY UPDATE?
YES
S105-10
SEND SCR TO ADDRESS PROXY
NO
S105-4
WHICH SERVER ALLOCATED HOME AGENT?
AAAF
S105-6
SEND SCR TO AAAF MANAGING HOME AGENT
SET "ADDRESS PROXY CHANGE REQUESTED" STATE
S105-11
AAAH
S105-5
SEND SCR TO HOME AGENT
S105-7
HA-MANAGING AAAF = CURRENT AAAF?
NO
S105-9
SET "HA CHANGE REQUESTED" STATE
YES
S105-8
SET "FA CHANGE REQUESTED" STATE
END

FIG. 37

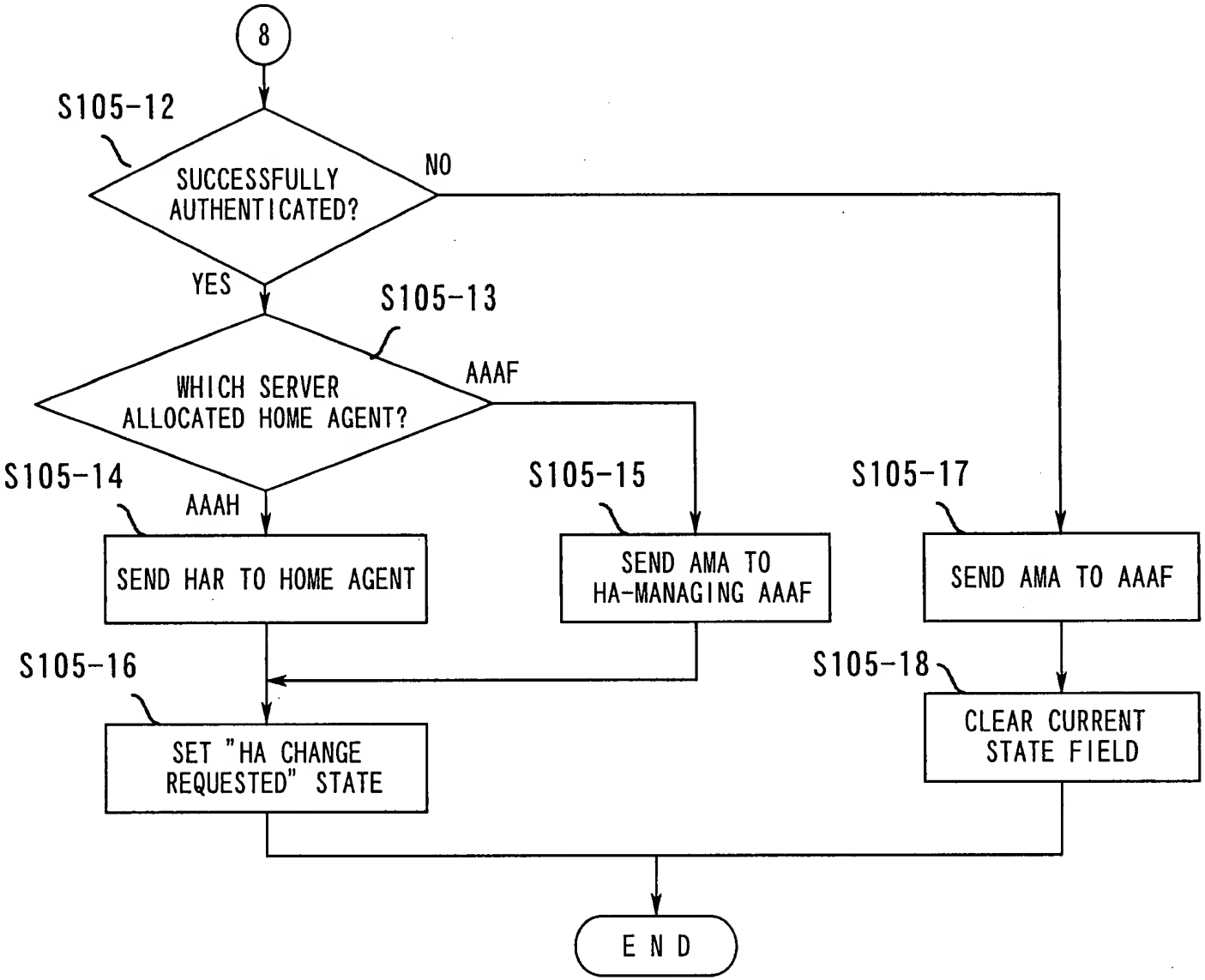
8
S105-12
SUCCESSFULLY AUTHENTICATED?
NO
YES
S105-13
WHICH SERVER ALLOCATED HOME AGENT?
AAAF
AAAH
S105-14
S105-15
S105-17
SEND HAR TO HOME AGENT
SEND AMA TO HA-MANAGING AAAF
SEND AMA TO AAAF
S105-16
S105-18
SET "HA CHANGE REQUESTED" STATE
CLEAR CURRENT STATE FIELD
END

FIG. 38

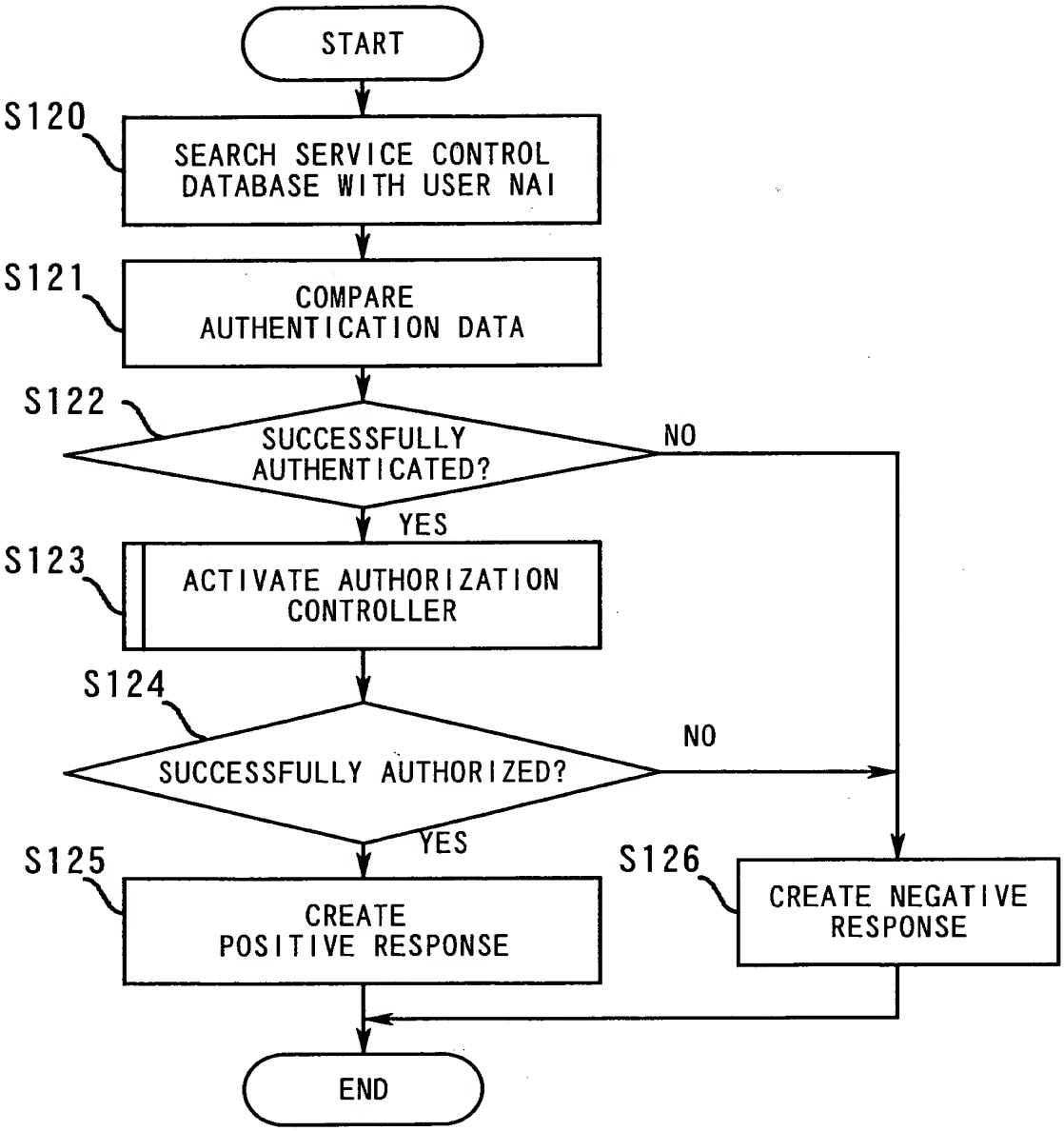
START
S120
SEARCH SERVICE CONTROL DATABASE WITH USER NAI
S121
COMPARE AUTHENTICATION DATA
S122
SUCCESSFULLY AUTHENTICATED?
NO
YES
S123
ACTIVATE AUTHORIZATION CONTROLLER
S124
SUCCESSFULLY AUTHORIZED?
NO
YES
S125
CREATE POSITIVE RESPONSE
S126
CREATE NEGATIVE RESPONSE
END

FIG. 39

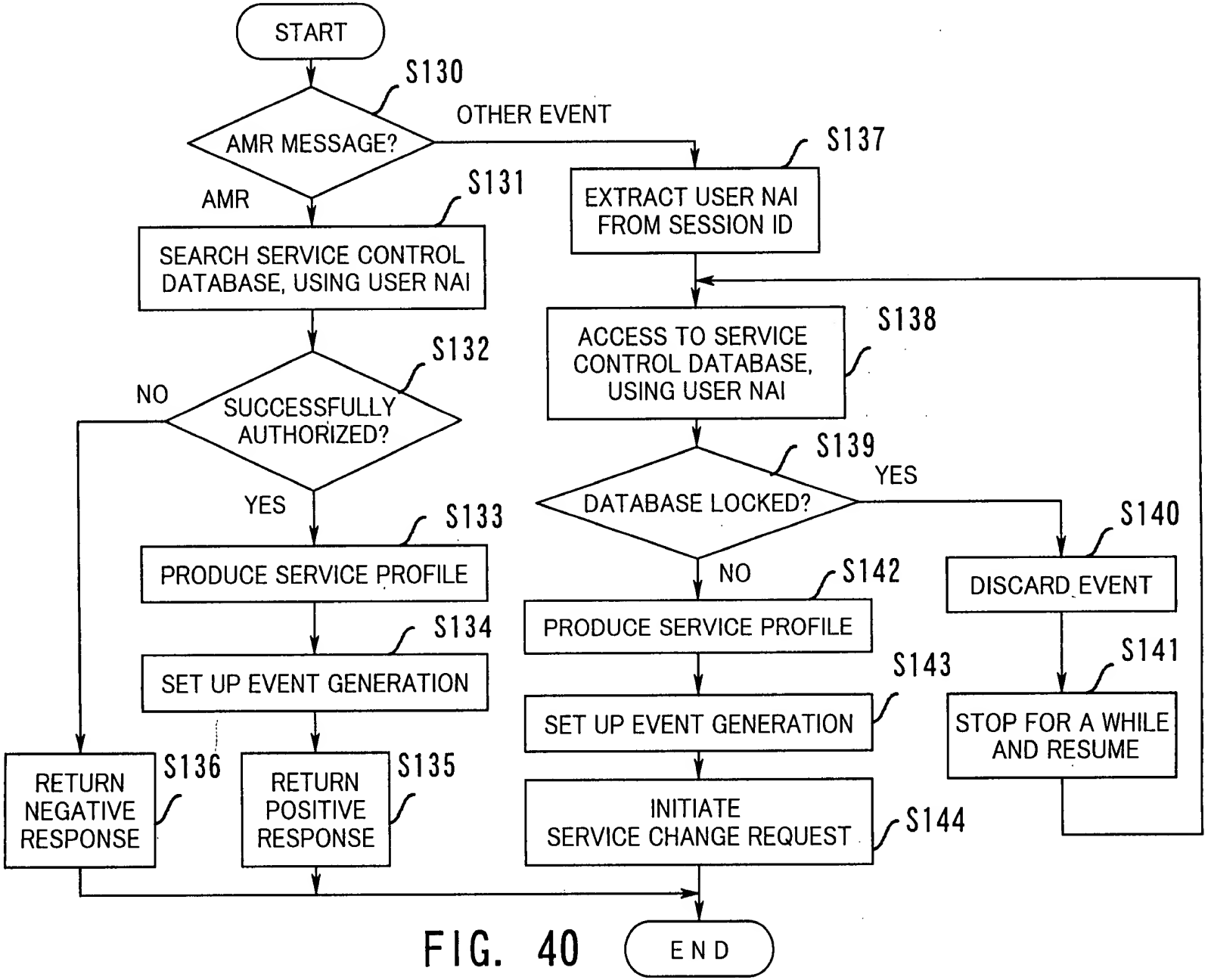
START
S130
AMR MESSAGE?
OTHER EVENT
S137
EXTRACT USER NAI FROM SESSION ID
AMR
S131
SEARCH SERVICE CONTROL DATABASE, USING USER NAI
S138
ACCESS TO SERVICE CONTROL DATABASE, USING USER NAI
S132
NO
SUCCESSFULLY AUTHORIZED?
S139
YES
DATABASE LOCKED?
YES
S140
DISCARD EVENT
S133
PRODUCE SERVICE PROFILE
NO
S142
PRODUCE SERVICE PROFILE
S134
SET UP EVENT GENERATION
S143
SET UP EVENT GENERATION
S141
STOP FOR A WHILE AND RESUME
S136
RETURN NEGATIVE RESPONSE
S135
RETURN POSITIVE RESPONSE
INITIATE SERVICE CHANGE REQUEST
S144
END

FIG. 40

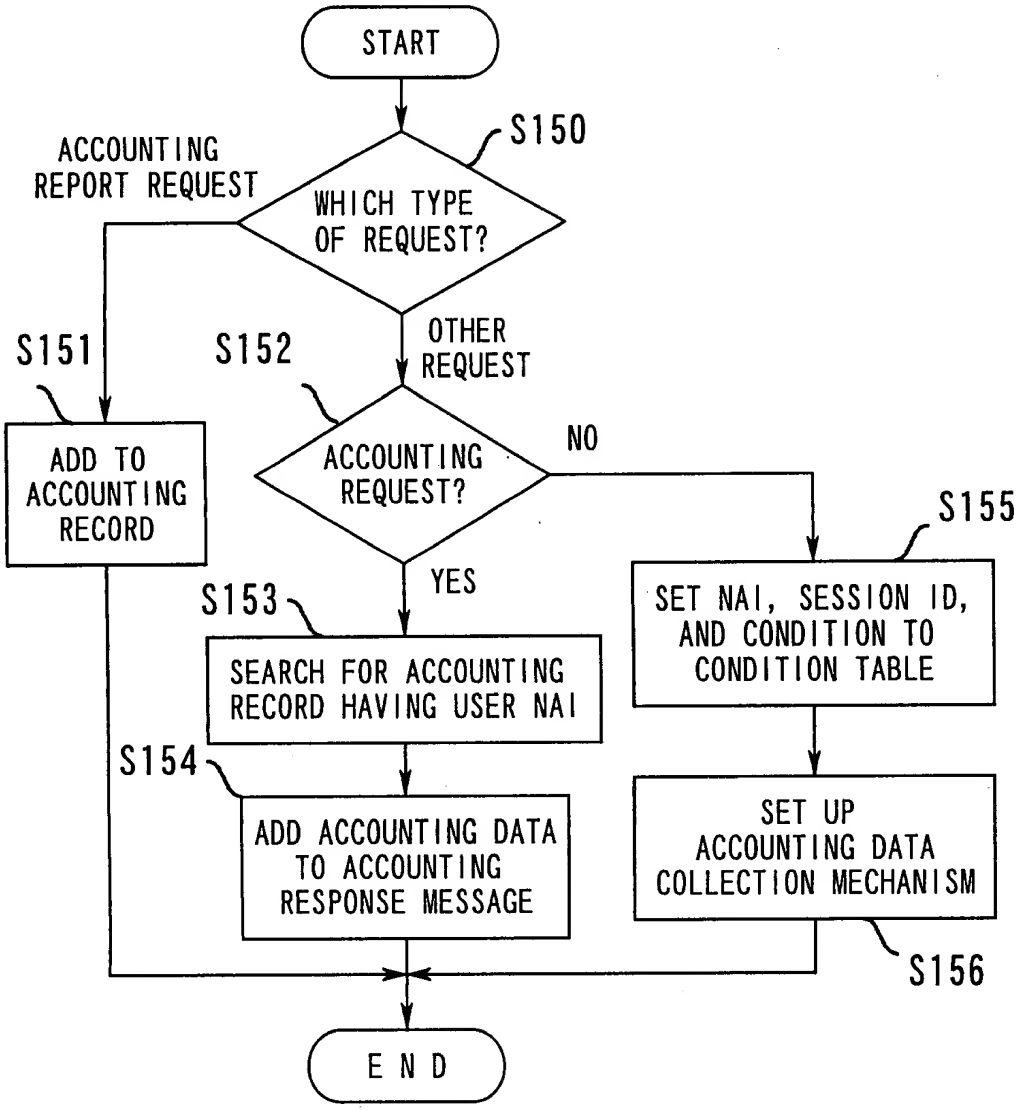

FIG. 41(A)

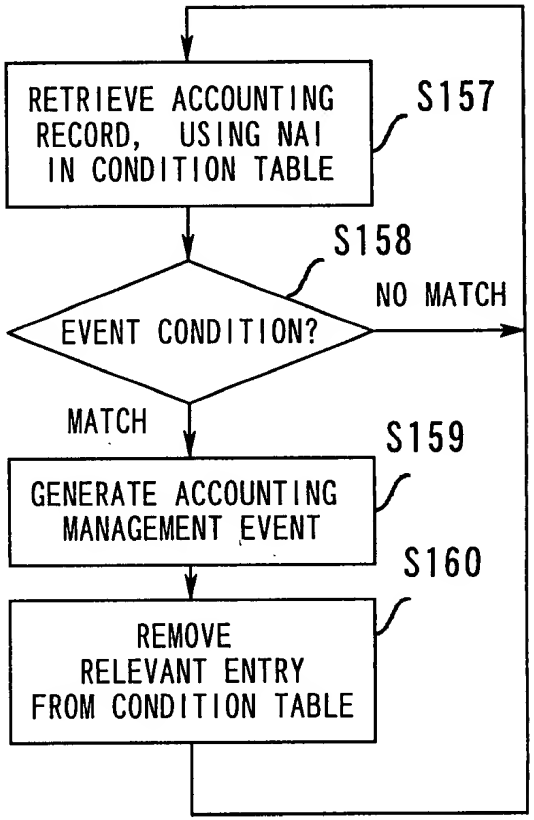

FIG. 41(B)

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Message Received	Action to be Invoked	Criteria	Destination	Message to send
AMR	Create session transaction	w/o Home-Agent-Address AVP	Current AAAF	AMA
		with Home-Agent-Address AVP	Home Agent	HAR
		(Mobile node has roamed into different AAAF domain) and (Home agent has been allocated by previous AAAF)	Purevious AAAF	AMR
AMA	Forward AMA message		Current AAAF	AMA
HAA	Set Home Agent address to session transaction		Current AAAF	AMA
SCA	Forward SCA message	in "HA Change Requested" state	Current AAAF	SCR
SFR	Forward SFR message, and terminate session transaction	w/o Home Agent allocation	Requesting entity	SFA
		with Home Agent allocation	Home Agent	SFR
SFA	Terminate session transaction	in "HA Release Requested" state	Current AAAF	SFR

FIG. 42

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NAI	Session ID	Condition
userA@domain1	<userA@domain1><10.11.22.33.><19991029013445>	if $100≧
userB@domain1	<userB@domain1><10.11.22.33.><19991029003445>	if $150≧
:	:	:
userZ@domain1	<userZ@domain1><10.12.23.4><19991029091000>	if $50≧

FIG. 43

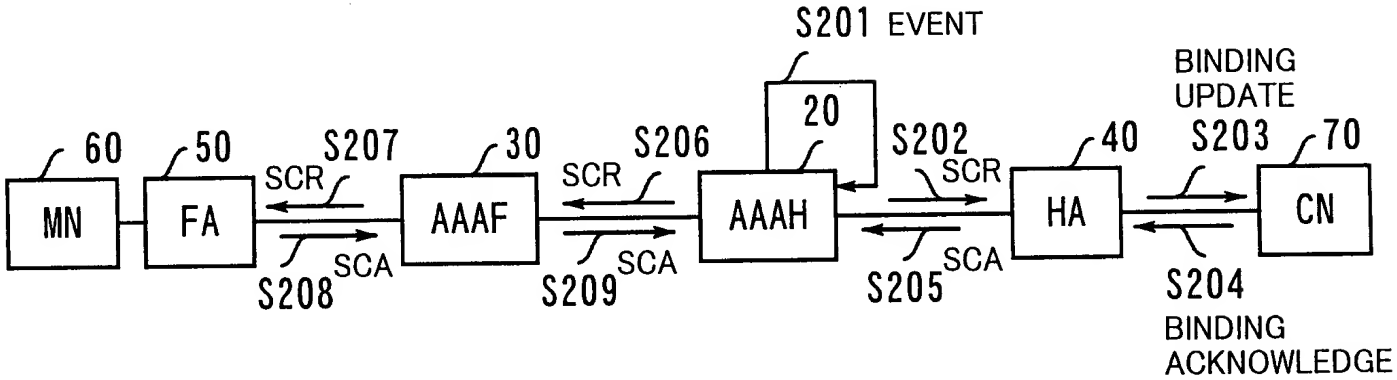
S201 EVENT
20
BINDING
UPDATE
60
50
S207
30
S206
S202
40
S203
70
SCR
SCR
SCR
MN
FA
AAAF
AAAH
HA
CN
SCA
SCA
SCA
S208
S209
S205
S204
BINDING
ACKNOWLEDGE

FIG. 44

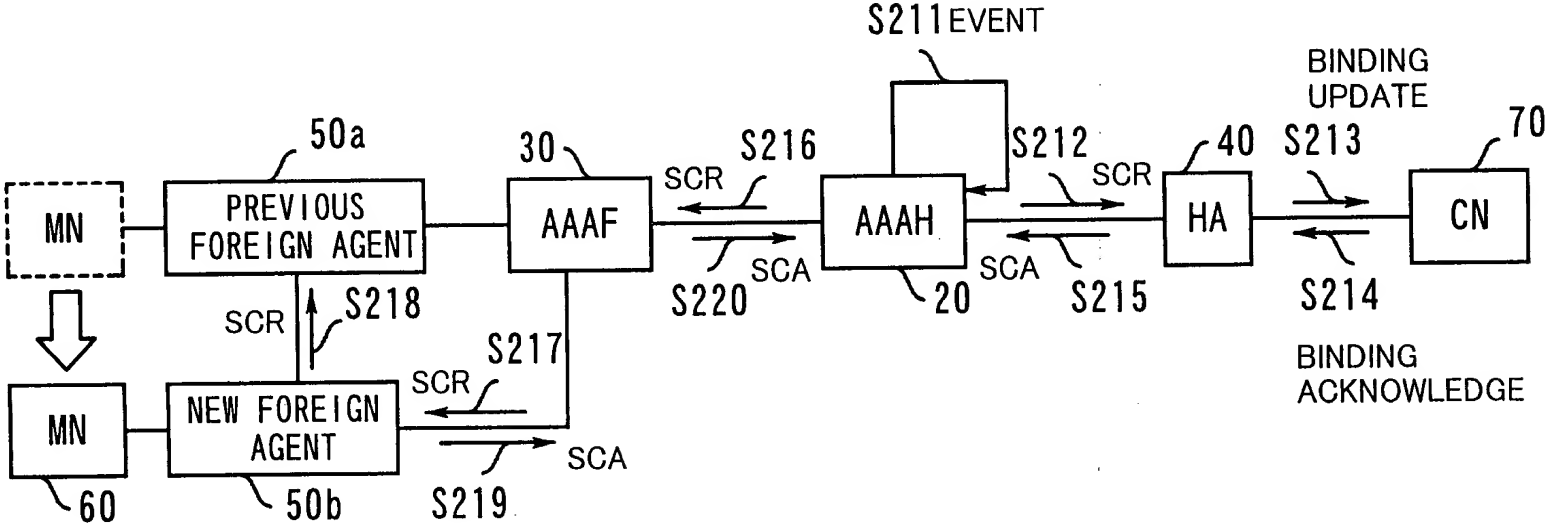
S211 EVENT
BINDING UPDATE
50a
30
S216
S212
40
S213
70
MN
PREVIOUS FOREIGN AGENT
AAAF
SCR
AAAH
SCR
HA
CN
SCA
SCA
S220
20
S215
S214
SCR
S218
S217
BINDING ACKNOWLEDGE
MN
NEW FOREIGN AGENT
SCR
SCA
60
50b
S219

FIG. 45

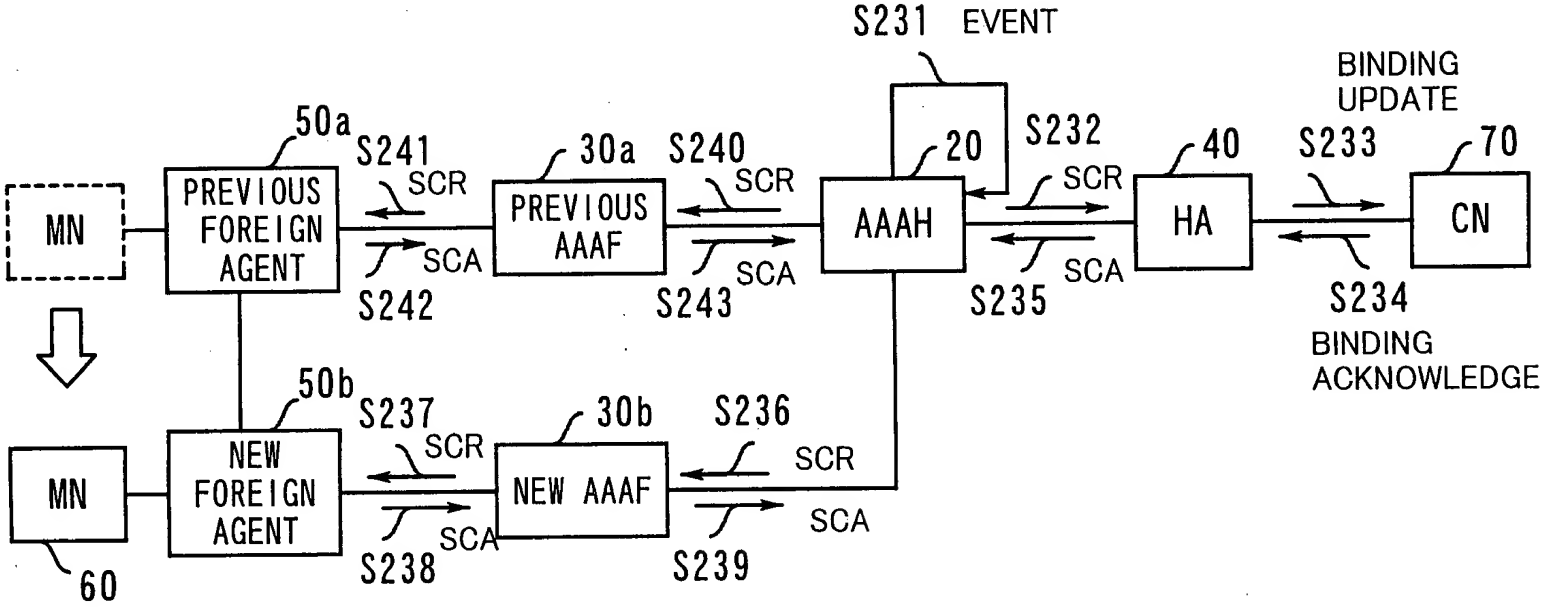
S231 EVENT
BINDING UPDATE
50a
S241
SCR
30a
S240
SCR
20
S232
SCR
40
S233
70
MN
PREVIOUS FOREIGN AGENT
SCA
PREVIOUS AAAF
SCA
AAAH
SCA
HA
CN
S242
S243
S235
S234
BINDING ACKNOWLEDGE
50b
S237
SCR
30b
S236
SCR
MN
NEW FOREIGN AGENT
SCA
NEW AAAF
SCA
60
S238
S239

FIG. 46

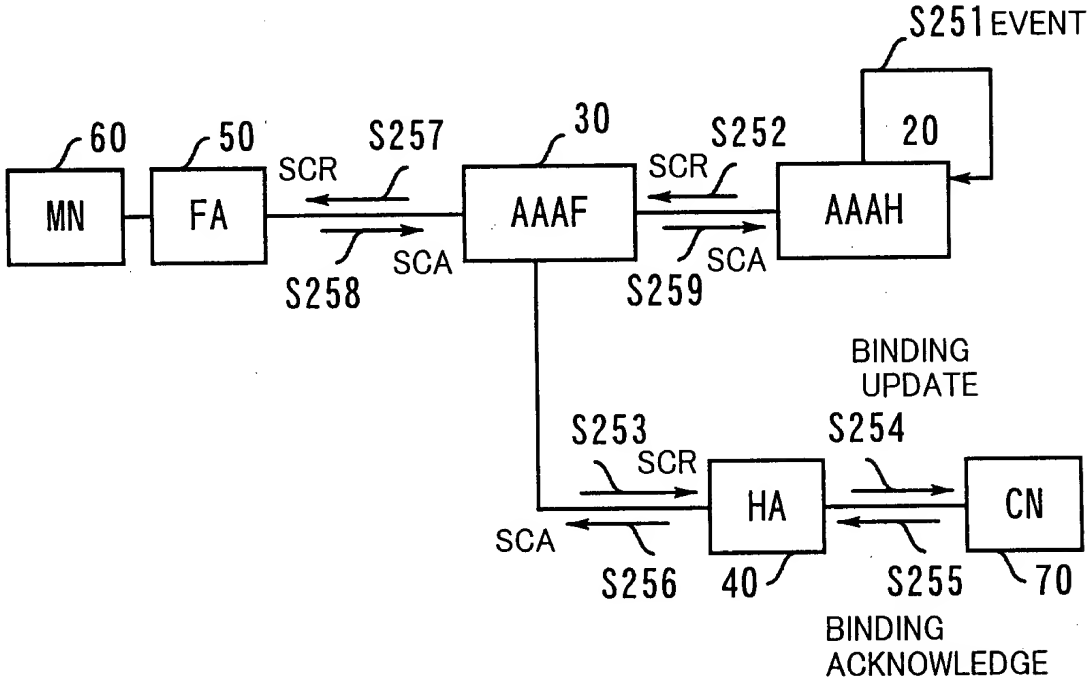
S251 EVENT
20
60
50
S257
30
S252
SCR
SCR
MN
FA
AAAF
AAAH
SCA
SCA
S258
S259
BINDING
UPDATE
S253
S254
SCR
HA
CN
SCA
S256
40
S255
70
BINDING
ACKNOWLEDGE

FIG. 47

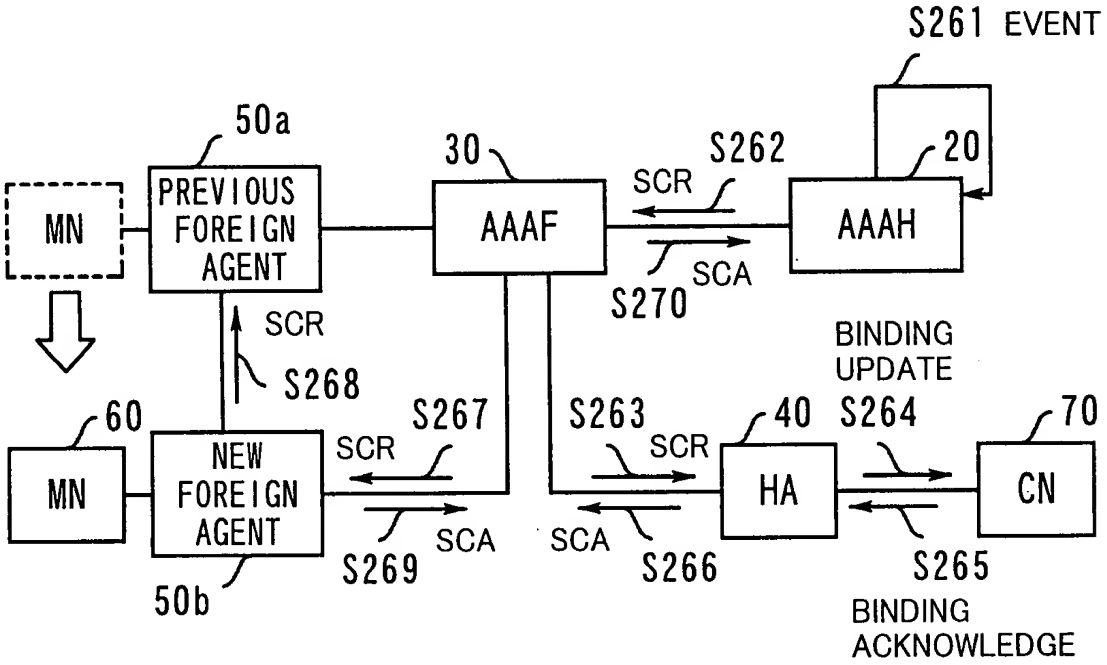
S261 EVENT
50a
30
S262
20
MN
PREVIOUS FOREIGN AGENT
AAAF
SCR
AAAH
SCA
S270
SCR
S268
BINDING UPDATE
60
S267
S263
40
S264
70
MN
NEW FOREIGN AGENT
SCR
SCR
HA
CN
SCA
SCA
S269
S266
S265
50b
BINDING ACKNOWLEDGE

FIG. 48

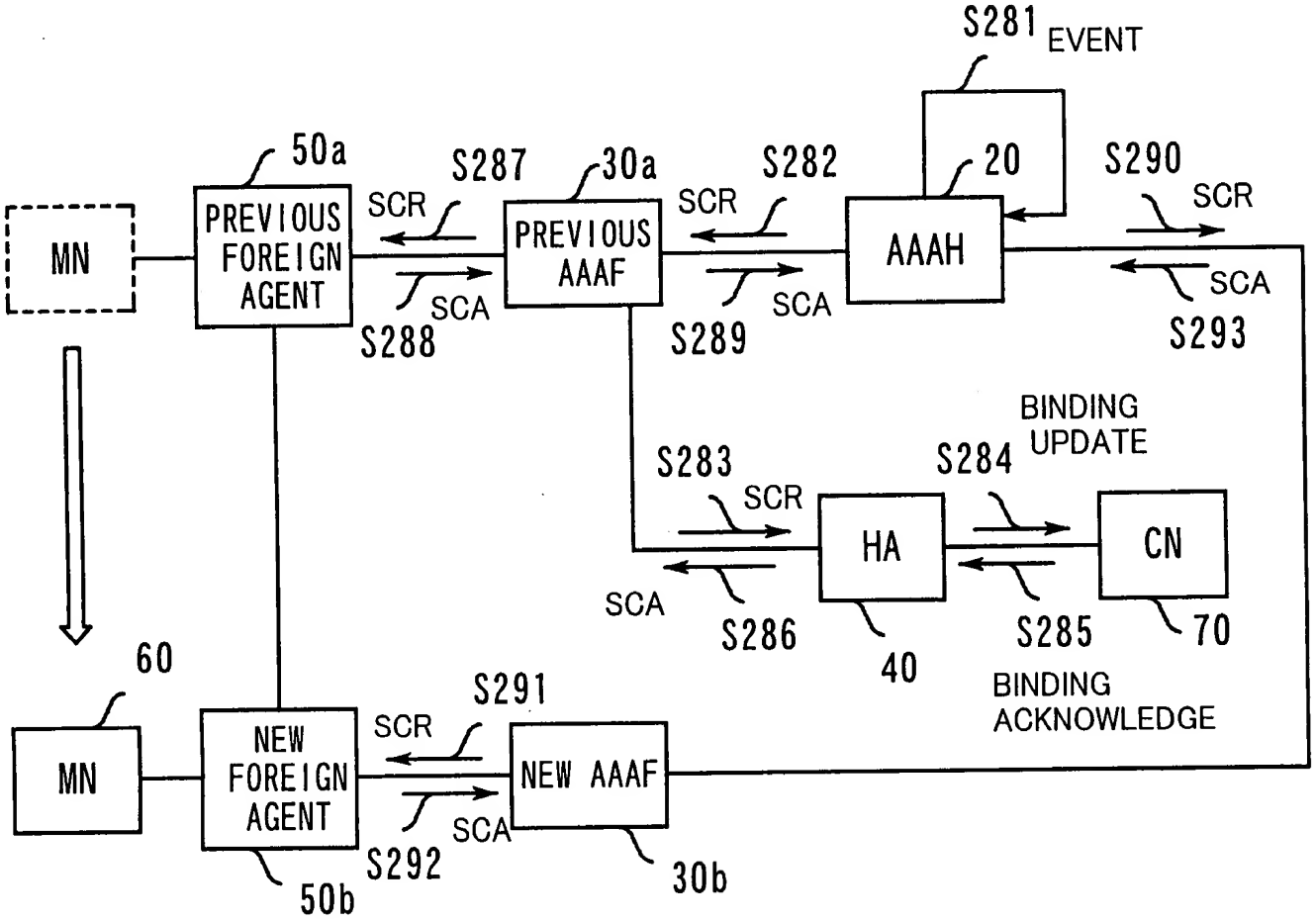
S281
EVENT
20
50a
S287
30a
S282
S290
SCR
SCR
SCR
PREVIOUS FOREIGN AGENT
PREVIOUS AAAF
AAAH
MN
SCA
SCA
SCA
S288
S289
S293
BINDING UPDATE
S283
S284
SCR
HA
CN
SCA
S286
S285
70
40
60
BINDING ACKNOWLEDGE
S291
SCR
NEW FOREIGN AGENT
NEW AAAF
MN
SCA
S292
50b
30b

FIG. 49

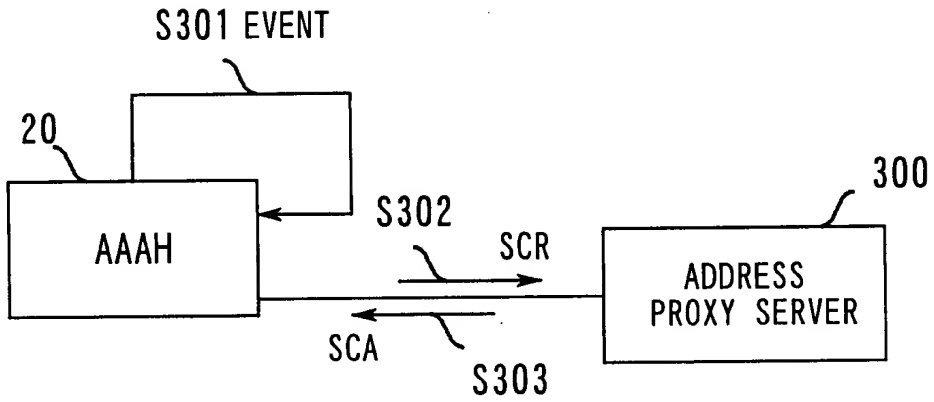
S301 EVENT
20
AAAH
S302
SCR
300
ADDRESS
PROXY SERVER
SCA
S303

FIG. 50

Service Type		Diffserv
Additional Information 1	Diffserv Activation Policy	*
	Service Class	Class C
	Direction	Upstream
	IP Address	*
	Port No.	*
Additional Information 2	Diffserv Activation Policy	Time : 23:00 to 08:00
	Service Class	Class B
	Direction	Downstream
	IP Address	*
	Port No.	*
Additional Information 3	Diffserv Activation Policy	Time : 08:00 to 23:00
	Service Class	Class C
	Direction	Downstream
	IP Address	*
	Port No.	*

FIG. 51

Service Type		Diffserv
Additional Parameters 1	Diffserv Activation Policy	*
	Service Class	Class C
	Direction	Upstream
	IP Address	*
	Port No.	*
Additional Parameters 2	Diffserv Activation Policy	*
	Service Class	Class B
	Direction	Downstream
	IP Address	*
	Port No.	*
Additional Parameters 3	Diffserv Activation Policy	Amount of Charges ≧$100
	Service Class	Class C
	Direction	Downstream
	IP Address	*
	Port No.	*

FIG. 52

Service Type		Packet Filtering
Additional Parameters	Filter Activation Policy	(IP Address) AND (Time 08:00 to 21:00)
	IP Address	XXX.XXX.*. *
	Port No.	*

FIG. 53

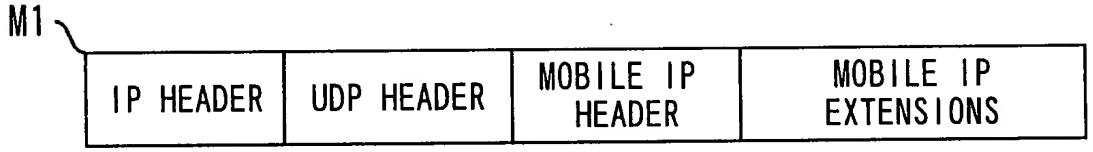
M1
IP HEADER
UDP HEADER
MOBILE IP HEADER
MOBILE IP EXTENSIONS

FIG. 54

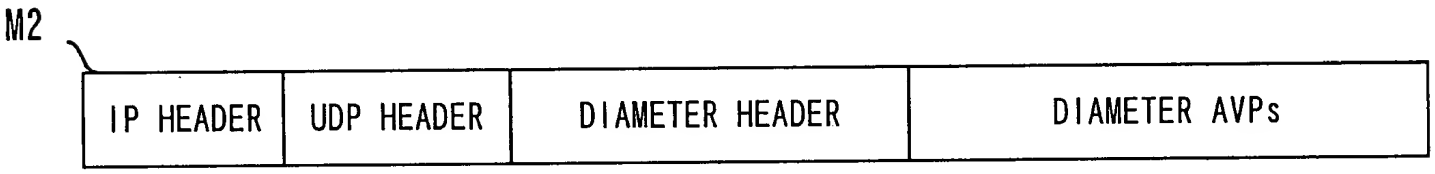

FIG. 55

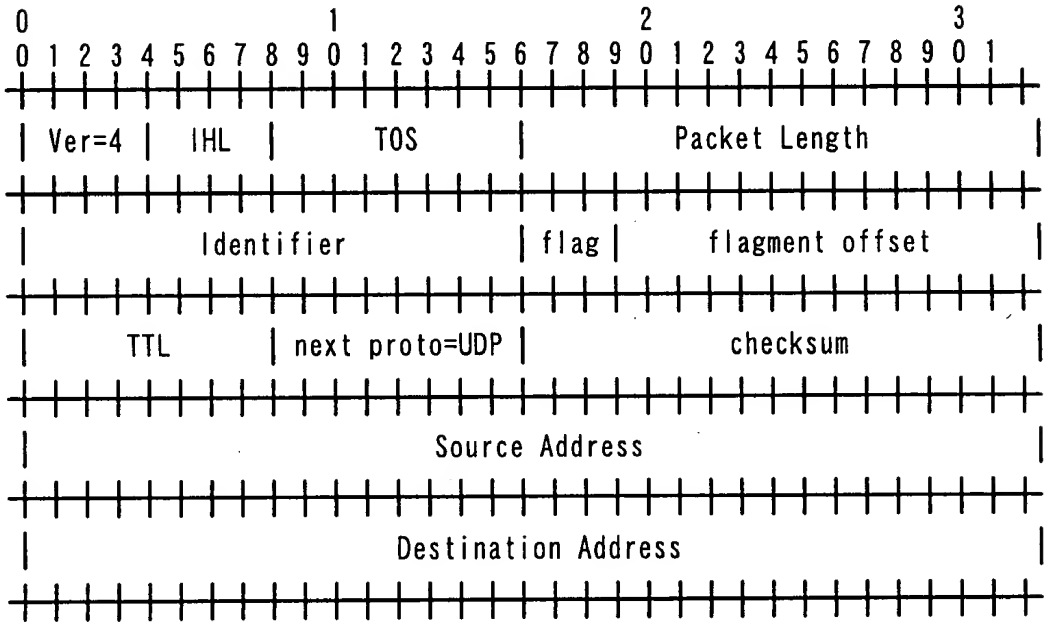
0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
Ver=4
IHL
TOS
Packet Length
Identifier
flag
flagment offset
TTL
next proto=UDP
checksum
Source Address
Destination Address

FIG. 56